



DEPARTMENT OF THE AIR FORCE
AIR FORCE REAL PROPERTY AGENCY

26 September 2008

AFRPA/COO
143 Billy Mitchell Blvd., Suite 1
San Antonio, TX 78226-1856

Mr. John LaPadula
Deputy Director, Emergency and Remedial Response Division
290 Broadway, 19th Floor
New York, NY 10007-1866

Dear Mr. LaPadula

Three copies of the Record of Decision for the Nose Dock 8 (SS-016) at the Former Plattsburgh Air Force Base, Plattsburgh, NY are signed by the Air Force Real Property Agency and attached. Upon signature by your agency, request one original signed copy be provided to NYSDEC (Attention: Mr. Daniel Eaton) and one original signed copy be provided to the AFRPA Plattsburgh Office (Attention: Mr. Stephen Gagnier).

Thanks to you and the other members the EPA and NY State staffs for your contributions that have led to this important milestone.

Sincerely

STEPHEN TERMAATH
Chief, Environmental Program Management

Attachments:
SS-016 Record of Decision (3 Cys)

cc:
NYSDEC (Mr. Daniel Eaton), (w/o atch)
AFRPA (Mr. Steve Gagnier), (w/o atch)



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

SEP 29 2008

Mr. Jeffrey Domm
Deputy Director
Air Force Real Property Agency
143 Billy Mitchell Blvd. Suite 1
San Antonio, TX 78226-1856

Re: Record of Decision – Nose Dock 8 (Site SS-016)
Former Plattsburgh AFB, Plattsburgh, NY

Dear Mr. Domm:

This is to inform you that after considering public comments on the Proposed Plan, the Air Forces's responsiveness summary to those comments, the Draft Final Record of Decision, and other supporting documents, the U.S. Environmental Protection Agency (EPA) concurs with the Record of Decision for the Nose Dock 8 (SS-016), located at Plattsburgh Air Force Base (AFB), Plattsburgh, New York. A copy of the signed Record of Decision, which I have co-signed on behalf of EPA, will be mailed directly to David Farnsworth at Plattsburgh AFB.

The Record of Decision for Nose Dock 8 documents past response actions taken under various removal actions or other programs. As a result of these actions, no further action is required. Please note this Record of Decision addresses only the above mentioned area of concern. All other areas at the former Plattsburgh AFB are being addressed under separate operable units.

If you have any questions regarding the subject of this letter, please contact me at 212 637-4390 or have your staff contact Bob Morse at 212 637-4331.

Sincerely,

George Pavlou
Acting Director
Emergency and Remedial Response Division

Enclosure

cc: Dale A. Desnoyers, NYSDEC
David S. Farnsworth, PAFB w/enc.
Daniel Eaton, NYSDEC w/enc.

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OCT 21 2008

AFRPA/DA PLBG

SITE SS-016 NOSEDOCK 8

RECORD OF DECISION

*Plattsburgh Air Force Base
Installation Restoration Program*



prepared for:
**United States Department of the Air Force
Plattsburgh Air Force Base
Plattsburgh, New York**

**Final
September 2008**

FINAL
RECORD OF DECISION

SS-016 (NOSE DOCK 8)

FORMER PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

UNITED STATES DEPARTMENT OF THE AIR FORCE
AIR FORCE REAL PROPERTY AGENCY

SEPTEMBER 2008

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ACRONYMS

AEA	Adirondack Environmental Associates
AFB	Air Force Base
AFRPA	Air Force Real Property Agency
AMSL	Above Mean Sea Level
ASC	Allowable Soil Concentration
AST	aboveground storage tank
BCT	BRAC Cleanup Team
BTEX	benzene, toluene, ethylbenzene, and xylene
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cfm	cubic foot per minute
DCE	dichloroethene
EE/CA	Engineering Evaluation/Cost Analysis
FFA	Federal Facilities Agreement
FS	feasibility study
gpm	gallons per minute
GTI	Groundwater Technology, Inc.
HQ	Hazard Quotient
HRA	health risk assessment
IRP	Installation Restoration Program
J&D	J&D Enterprises of Duluth, Inc.
kg	kilogram

ACRONYMS (CONTINUED)

L	liter
µg	microgram
MCL	Maximum Contaminant Level
NCP	National Contingency Plan
NPL	National Priorities List
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
OHM	OHM Remediation Services Corp.
OU	operable unit
PAH	polycyclic aromatic hydrocarbon
PARC	Plattsburgh Airbase Redevelopment Corporation
PCB	polychlorinated biphenyl
PID	photoionization detector
ppb	parts per billion
ppm	parts per million
RAB	Restoration Advisory Board
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SCGs	Standards, Criteria, and Guidance Values
SE	Supplemental Evaluation
SI	site investigation/inspection
SS-016	Nose Dock 8
SVE	Soil Vapor Extraction

ACRONYMS (CONTINUED)

SVOC	semivolatile organic compound
TAGM	Technical and Administrative Guidance Memorandum
TBC	To Be Considered
TCE	trichloroethene
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound

DECISION SUMMARY

DECLARATION FOR THE RECORD OF DECISION

Site Name and Location

Plattsburgh Air Force Base

Site SS-016 (Nose Dock 8)

Plattsburgh, Clinton County, New York

EPA ID # NY4571924774

Statement of Basis and Purpose

This Record of Decision (ROD) presents the selected remedial alternative for the SS-016 Site also known as the Nose Dock 8 Site at the Plattsburgh Air Force Base (AFB) in Plattsburgh, New York. It has been developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for this Site, a copy of which is located at the Information Repository at the Feinburg Library on the campus of the State University of New York at Plattsburgh and is available on-line at <https://afrpaar.lackland.af.mil/ar>.

The remedy of no further action has been selected by the United States Air Force (Air Force) in conjunction with the United States Environmental Protection Agency (USEPA) and with the concurrence of the New York State Department of Environmental Conservation (NYSDEC) pursuant to the Federal Facility Agreement (FFA), Docket No. II-CERCLA-FFA-10201, signed among the Air Force, USEPA, and NYSDEC on July 10, 1991. A copy of the NYSDEC concurrence letter is included as Appendix C of this ROD.

Assessment of the Site

Site SS-016 (Nose Dock 8) is located within the industrial area of the former Plattsburgh AFB between Florida and Delaware Streets on the northeastern end of the flightline ramp. The Site is centered at the eastern end of Nose Dock 8 (Building 2890) where aircraft were staged for painting and maintenance. Nose Dock 8 was active from 1956 until base closure in 1995.

Building 2890, built in the 1950's, was used to stage aircraft for painting and other general maintenance operations. Radian (1985) reported that the quantities of solvents used at the building included: 2-butanone (720 gallons/year); Turco paint remover (60 gallons/year); lacquer thinner (120 gallons/year); and polyurethane thinner (120 gallons/year). Some of these materials were stored in 55-gallon drums on a concrete pad east of the building which is known as the former waste accumulation area.

The major source of contamination at the Site was a former underground concrete-lined sump inside Nose Dock 8. The sump dimensions were 5.3 feet square and 9.3 feet deep. It was used to collect and store waste solvents.

A 1,000 gallon above ground storage tank (AST) was situated adjacent to the sump. The AST was also used to store solvents used at the building. The AST, sump, and other related tanks were interconnected. The AST was removed in the late 1980s.

The sump, located in the northeast corner of Building 2890, ruptured on March 26, 1987. Approximately 1,400 gallons of waste solvents leaked into the ground. The sump subsequently was abandoned and filled with concrete. Removal actions were conducted in April and May 1999 by J&D Enterprises of Duluth, Inc. and Adirondack Environmental Associates (AEA). This removal action included the removal of the concrete-filled sump and surrounding soils. During the removal activities, leakage from the base of the sump and visual staining migrating vertically to the water table were observed, indicating that the sump and pipeline may have leaked for several years before the reported sump failure. A total of 11.5 cubic yards of soils were removed, and properly disposed of, from the sump area to a depth of 11 feet below the concrete floor. Following removal activities, the excavation was backfilled. Soil and groundwater sampling in the vicinity of the sump confirmed that the principal contaminants of concern from these spills were 2-butanone, methylene chloride, toluene, xylenes, ethylbenzene, and trichloroethene. Details regarding the disposal of the sump concrete and excavated soil are given in the Confirmation Report for the Removal of Oil Water Separators and Solvent Pipelines at the Former Plattsburgh Air Force Base (AEA 1999); and Final Closure Report for Removal Actions at the Washrack (Area 2891) and Building 2890 (Nose Dock 8) at Plattsburgh Air Force Base Closure Report (OHM, 2001).

Prior to and following the sump removal, the Air Force, in consultation with the USEPA and NYSDEC, recognized the need for source control. As a result of a 1995 Engineering Evaluation/Cost Analysis (EE/CA), interim removal and treatment, including a groundwater extraction and soil vapor extraction (SVE) systems, were implemented in 1996 by URS in a Treatability Study (URS, 1997b). The treatment system consisted of a single 8 inch well located near the underground sump inside Building 2890 for both SVE and groundwater extraction. During operation, the average groundwater extraction rate ranged from 5 to 15 gallons per minute (gpm). Groundwater was extracted to lower the water table in the area of the sump to expose contaminated soil for SVE. Treatment of the collected groundwater was performed via air stripping and carbon adsorption before being discharged to three infiltration galleries located outside of the building. SVE consisted of a 400 cubic feet per minute (cfm) blower drawing from the extraction well situated inside Building 2890. The treatment system remained in nearly continuous operation (24 hours per day, 7 days per week) until November 2006, with some periodic interruptions for maintenance.

Other potential areas of concern that were investigated during Installation Restoration Program (IRP) activities at the Site are: a former waste accumulation area adjacent to the southeast corner of Nose Dock 8 (Building 2890); two hazardous material storage containers located north of Nose Dock 8; and a former fresh product drum storage area northwest of Building 2890. No significant contaminants were discovered to be associated with these features. Building 2890 is surrounded largely by impervious asphalt or concrete flightline apron. Grassy areas are located

along the west and east ends of the building. Local topography slopes gently to the east and northeast, with surface elevations ranging from approximately 214 feet above mean sea level (amsl) near the northwest corner of Building 2890 to approximately 210 feet amsl just east of the building. The water table is found at a depth of approximately 12 to 14 feet beneath Building 2890 within an unconfined sand aquifer. Groundwater flows to the east and southeast near the building. A silt and clay confining unit underlies the sand at about 60 feet below ground surface. This unit retards contaminant flow from the sand into the till water-bearing zone and bedrock aquifer that lie below the silt/clay.

To the northeast, residents are using water from the sand aquifer at Kemp Lane; groundwater from Site SS-016 does not flow in the direction of Kemp Lane.

Description of the Remedy

Site SS-016 is one of a number of sites administered under the Plattsburgh AFB IRP. RODs have been signed for 18 operable units at the base and additional RODs are planned for other IRP sites.

As a result of the restoration activities summarized under the Assessment of Site Section, the soil and groundwater contamination reported during the previous investigations at Site SS-016 Nose Dock was removed. The remaining concentrations of chemicals in the soil and groundwater do not exceed either New York State Standards, Criteria, and Guidance values (SCGs) or federal Maximum Contaminant Levels (MCLs) and pose no threat to public health and the environment. Thus, no further action is proposed for Site SS-016.

Statutory Determinations

The selected remedy (no action) for Site SS-016 is protective of human health and the environment and complies with federal and state applicable or relevant and appropriate requirements (“ARARs”).

Plattsburgh Air Force Base –Site SS-016 (Nose Dock 8)

ROD Data Certification Checklist

The following information is included in this ROD. Additional information can be found in the Administrative Record file for this Site.

Chemicals of concern and their respective concentrations (Section 5.0)


Baseline risk represented by the chemicals of concern (Section 7.0)

How source materials constituting principal threats are addressed (Section 4.0)

Current and reasonably anticipated future land use assumptions, and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD (Sections 6.0 and 7.0)

Potential land and groundwater use that will be available at the Site as a result of the selected remedy (Section 6.0)

Key factors that led to selecting the remedy (Sections 5.0, 8.0, and 9.0)


JEFFREY DOMM

Acting Director

Air Force Real Property Agency

Plattsburgh Air Force Base –Site SS-016 (Nose Dock 8)

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Potential land and groundwater use that will be available at the Site as a result of the selected remedy (Section 6.0)

Key factors that led to selecting the remedy (Sections 5.0, 8.0, and 9.0)



GEORGE PAVLOU

Acting Director, Emergency and Remedial Response Division

United States Environmental Protection Agency, Region 2

1.0 SITE NAME, LOCATION, AND DESCRIPTION

The former Plattsburgh AFB, located in Clinton County in northeastern New York State, is bordered on the north by the City of Plattsburgh, the south by the Salmon River, on the west by Interstate 87, and on the east by Lake Champlain (Figure 1). The base is approximately 26 miles south of the Canadian border and 167 miles north of Albany. Plattsburgh AFB was closed on September 30, 1995 as part of the (third round of) base closures mandated under the Defense Base Closure and Realignment Act of 1993, and its reuse is being administered by the Plattsburgh Airbase Redevelopment Corporation (PARC). As part of the Air Force's IRP and Base Realignment and Closure (BRAC) Program, Plattsburgh AFB has initiated activities to identify, evaluate, and remediate identified sites where hazardous substances may have been released. The IRP at Plattsburgh AFB is being implemented according to the FFA. Plattsburgh AFB was placed on the National Priorities List on November 21, 1989. Cleanup is being funded by the Air Force.

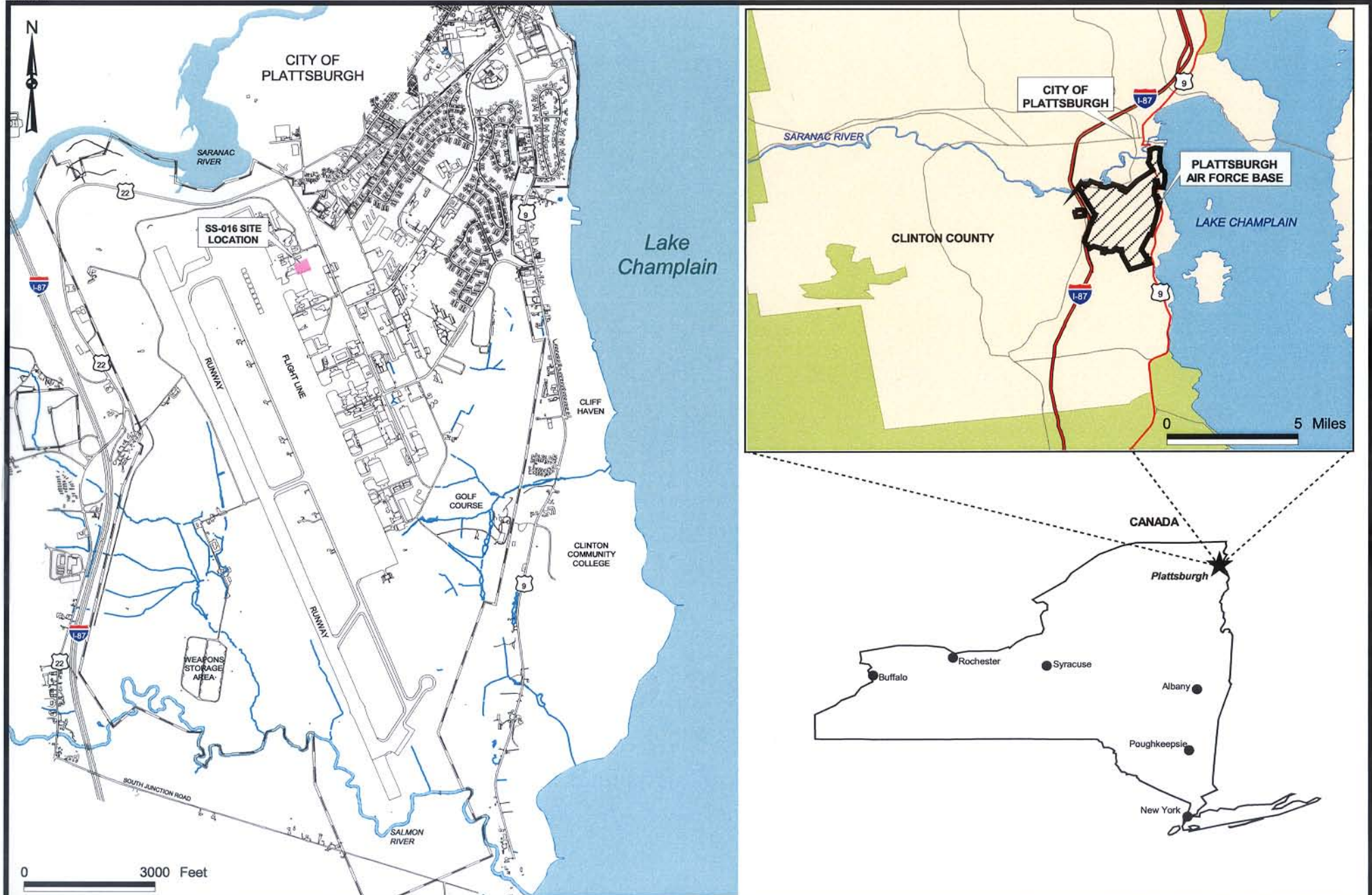
Site SS-016 (also known as Nose Dock 8) is located within the industrial area of the former Plattsburgh AFB between Florida and Delaware Streets on the northeastern end of the flightline ramp (Figure 2). The Site is centered around the eastern end of Nose Dock 8 (Building 2890) where aircraft were staged for painting and maintenance. Nose Dock 8 was active from 1956 until base closure in 1995.

Building 2890, built in the 1950s, was used to stage aircraft for painting and other general maintenance operations. Radian (1985) reported that the quantities of solvents used at the building included: 2-butanone (720 gallons/year); Turco paint remover (60 gallons/year); lacquer thinner (120 gallons/year); and polyurethane thinner (120 gallons/year). Some of these materials were stored in 55-gallon drums on a concrete pad east of the building which is known as the former waste accumulation area.





The major source of contamination at the Site was a former underground concrete-lined sump inside Nose Dock 8. The sump dimensions were 5.3 feet square and 9.3 feet deep. It was used to collect and store waste solvents.

A 1,000 gallon above ground storage tank (AST) was situated adjacent to the sump. The AST was also used to store solvents used at the building. The AST, sump, and other related tanks were interconnected. The AST was removed in the late 1980's.

The sump ruptured on March 26, 1987. Approximately 1,400 gallons of waste solvents leaked into the ground. The sump subsequently was abandoned and filled with concrete. Contamination associated with the sump and a below-grade pipe that connected the sump to a grated floor drain was confirmed during the 1999 removal of the sump (Adirondack Environmental Associates (AEA), 1999). The sump and pipe may have leaked for several years prior to the reported sump failure. The principal contaminants of concern from these spills are 2-butanone, methylene chloride, toluene, xylenes, ethylbenzene, and trichloroethene.





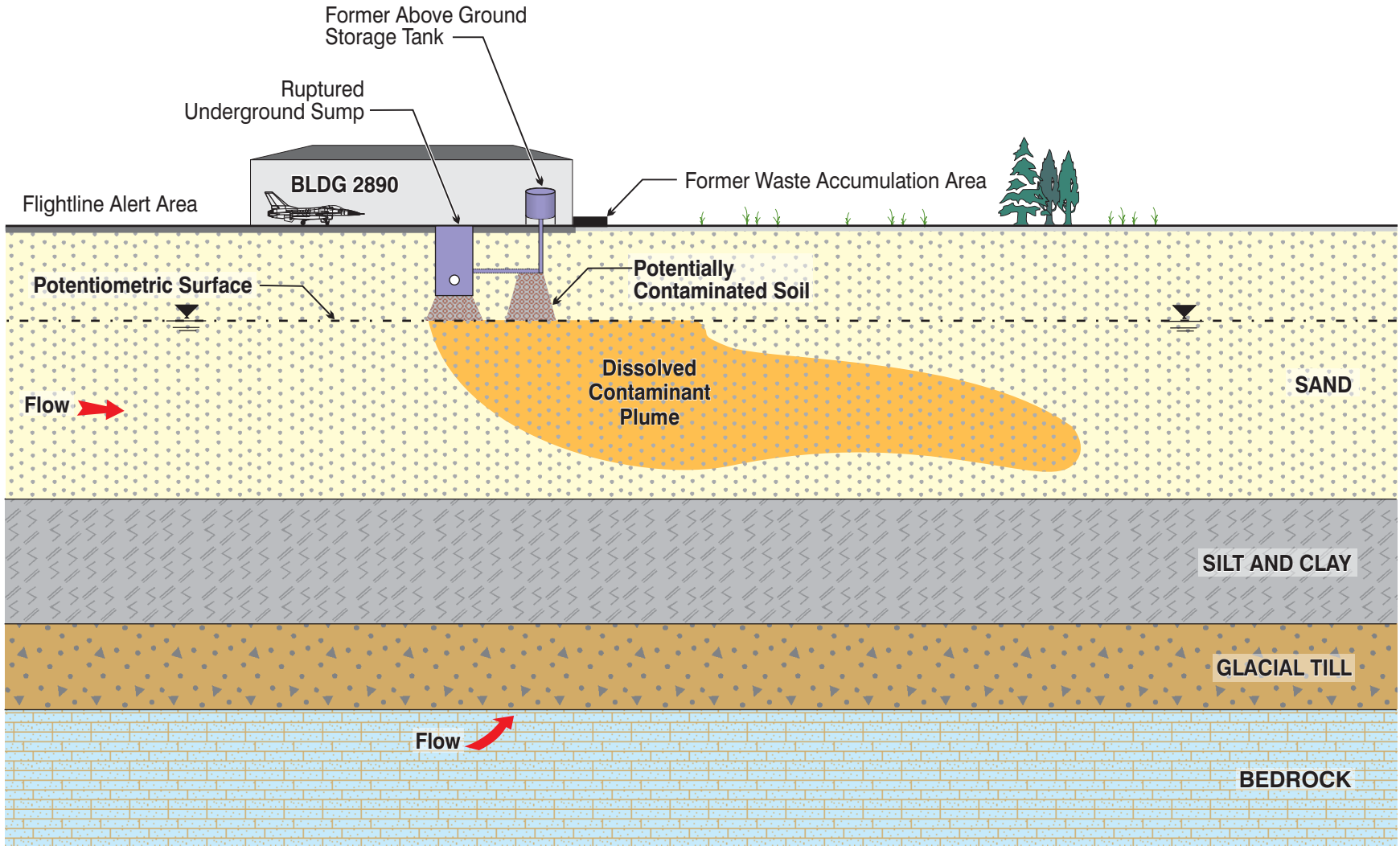
 <p>Location Map</p>	<p>Key to Features</p> <p> IRP Site</p> <p> Facility</p> <p>0 220 Feet</p>	<p>UNITED STATES AIR FORCE FORMER PLATTSBURGH AIR FORCE BASE PLATTSBURGH, NEW YORK</p> <p></p> <p>FIGURE 2 SITE FEATURES</p> <p>FPMgroup</p> <p>Page 8</p>
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Other potential areas of concern that were investigated during IRP activities at the Site are: a former waste accumulation area adjacent to the southeast corner of Building 2890; two hazardous material storage containers located north of Building 2890; and a former fresh product drum storage area northwest of Building 2890. No significant contaminants were discovered to be associated with these features. A conceptual model of Site contamination is presented in Figure 3. Building 2890 is surrounded largely by impervious asphalt or concrete flightline apron. Grassy areas are located along the west and east ends of the building. Local topography slopes gently to the east and northeast, with surface elevations ranging from approximately 214 feet above mean sea level (amsl) near the northwest corner of Building 2890 to approximately 210 feet amsl just east of the building. The water table is found at a depth of approximately 12 to 14 feet beneath Building 2890 within an unconfined sand aquifer. Groundwater flows to the east and southeast near the building. A silt and clay confining unit underlies the sand at about 60 feet below ground surface. This unit retards contaminant flow from the sand into the till water-bearing zone and bedrock aquifer that lie below the silt/clay.

To the northeast, residents are using water from the sand aquifer at Kemp Lane; groundwater from the Site SS-016 does not flow in the direction of Kemp Lane.

WEST

EAST



NOT TO SCALE

2.0 HISTORY AND ENFORCEMENT ACTIVITIES

Several investigations and removal actions have been undertaken to evaluate and mitigate contaminated soil and groundwater present at Site SS-016. In 1987, the sump ruptured and waste solvents leaked into the ground. Investigation and actions at Site SS-016 have since focused on addressing soil and groundwater contamination; these actions are listed and referenced in Table 1 and are described in greater detail in Section 5. Currently, soil and groundwater sampling have confirmed the absence of contamination at Site SS-016.

Table 1
Site SS-016 Previous Investigations and Actions

Timeframe	Activity	Description
1985	Phase I Record Search (Radian, 1985)	Review of records and practices at Building 2890.
1987	Sump Release Investigation (GTI)	Soil and groundwater sampling at the Site.
1987	Site Investigation (E.C. Jordan, 1989)	Limited soil gas, groundwater, surface water, and sediment sampling at the Site.
1994-1996	Remedial Investigation (URS, 1996a)	Extensive sampling of soil, groundwater, surface water, and sediment at Site SS-016.
1996-2006	Treatability Study (Groundwater and Soil Remediation) (URS, 1997b)	Evaluation of interim removal and treatment actions. Implementation of groundwater extraction and Soil Vapor Extraction (SVE) systems.
1996-2007	Groundwater Performance Monitoring (treatment systems) (URS, 2007b)	Groundwater sampling to monitor performance of groundwater treatment systems. VOCs and SVOCs were analyzed.
1996	Informal Technical Information Report – Groundwater Sampling (URS, 1997a)	Groundwater sampling
1997	Informal Technical Information Report – Supplemental Investigation (URS, 1998a)	Soil and groundwater sampling

Table 1 (cont'd.)
Site SS-016 Previous Investigations and Actions

Timeframe	Activity	Description
1999	Sump Removal Action (AEA, 1999 and OHM, 2001)	Sump and approximately 10 cubic yards of contaminated soils were removed.
2000-2002	Supplemental Evaluation and Feasibility Study (URS, 2002a)	Summarize previous data, evaluate risks and remedial alternatives, soil and groundwater sampling, and extensive hydrogeologic testing
2007	Confirmatory Soil Sampling (URS, 2007a)	Evaluate the progress of response actions in the vadose zone under Building 2890.

3.0 COMMUNITY PARTICIPATION

The Air Force has kept the community informed regarding progress at Site SS-016 during regular Restoration Advisory Board (RAB) meetings that are open to the public. This board consists of the BRAC Cleanup Team (BCT) members (key representatives from the Air Force, USEPA, and NYSDEC) and representatives from municipalities, community organizations, and associations including community members with environmental/engineering expertise. The RAB, which was chartered in 1995, serves as a forum for the community to become familiar with the restoration activities ongoing at Plattsburgh AFB and to provide input to the BCT.

The RI report, the final Proposed Plan (FPM, 2008), and other site-related documents in the Administrative Record have been made available to the public. The full-length reports have been available at the Information Repository located at the Feinberg Library on the Plattsburgh campus of the State University of New York and also available on-line at <https://afrpaar.lackland.af.mil/ar>.

The notice of the availability of these documents was published in the Plattsburgh *Press Republican* Newspaper on August 18, 2008. In addition, a 30-day public comment period was held from August 18, 2008 to September 16, 2008 to solicit public input on the final Proposed Plan for Site SS-016. During this period, the public was invited to review the Administrative Record and comment on the preferred alternative being considered.

In addition, Plattsburgh AFB hosted a public meeting on August 28, 2008 at the Clinton County Government Center, First Floor Conference Room, 137 Margaret Street. The date and time of the meeting was published in the Plattsburgh *Press Republican* Newspaper. The meeting was divided into two segments. In the first segment, data gathered at the Site, the preferred alternative, and the decision-making process were discussed. In the second segment, immediately after the informational presentation, Plattsburgh AFB held a formal public meeting to accept comments about the preferred remedial alternative (no action) being considered for Site SS-016. The meeting provided the opportunity for people to comment officially on the plan. The public meeting has been recorded and transcribed, and a copy of the transcript has been added to the Administrative Record and Information Repository. This transcript is included as Appendix A of this ROD. No public comments on the Proposed Plan were submitted. A responsiveness summary documenting the comment solicitation process is included as Appendix B.

4.0 SCOPE AND ROLE OF OPERABLE UNIT

Site SS-016 is one of several sites (or operable units) administered under the Plattsburgh AFBIRP. RODs have previously been signed covering 18 operable units at the base, and additional RODs are planned for other sites. The Site SS-016 operable unit includes both previously contaminated soil in the unsaturated zone (vadose zone) and previously contaminated groundwater at the Site. No further action is recommended for Site SS-016.

Interim actions conducted at the Site have eliminated the source of soil and groundwater contamination. The principal threat wastes at Site SS-016 were mixed solvents and fuel-related hydrocarbons dissolved within the groundwater at the Site (Figure 2) and in soil in the vicinity of the former Building 2890 sump at the water table.

5.0 SITE CHARACTERISTICS

A previous spill at Site SS-016 resulted in contaminated groundwater at the Site at levels that exceeded New York State Groundwater SCGs. Various actions undertaken at the Site have removed the sources of groundwater and soil contamination. Currently, no significant threat to human health is posed by contaminants remaining in the groundwater or soil at Site SS-016. Past investigations (Section 5.1), summary of site contamination from the previous investigations (5.2), removal actions at Site SS-016 (Section 5.3), Groundwater Performance Monitoring (Section 5.4), Soil Treatment (Section 5.5), and Site Surface Water and Groundwater Hydrology (Section 5.6) are summarized below.

5.1 Previous Investigations and Removal Actions

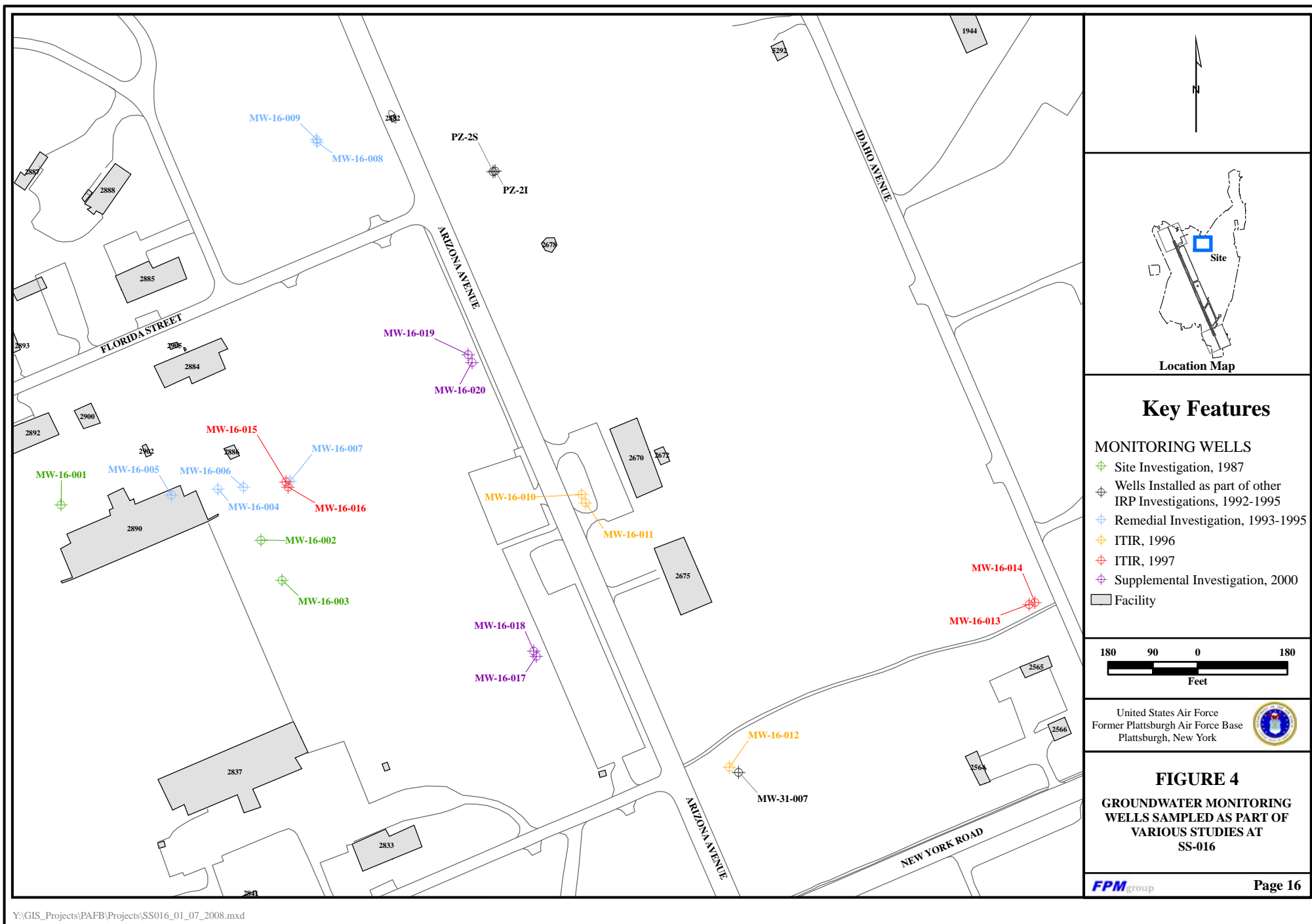
5.1.1 Phase I Records Search

In 1985, Radian Corporation completed a Phase I records search for Plattsburgh AFB to identify sites with environmental contamination resulting from past practices and to assess the probability of contaminant migration (Radian 1985). An area of concern was identified in an approximate 10-foot diameter area of blackened sandy soil located northwest of Building 2890, adjacent to the asphalt parking lot, where drums of new product (2-butanone) were stored on a rack. Spills at the Site were deemed to pose a low potential risk and no further actions were recommended for Building 2890.

5.1.2 Groundwater Technology, Inc. Investigation

On March 26, 1987, the underground sump inside Building 2890 ruptured. Groundwater Technology, Inc. (GTI) was retained to investigate the release. The investigation was conducted in two phases. In the first phase, four monitoring wells were installed around the eastern end of Building 2890. Ketones (acetone and 2-butanone), chlorinated hydrocarbons, and benzene, toluene, ethylbenzene, xylenes (BTEX) were detected in two of the wells. During the second phase, seven additional borings were advanced.

Soil samples were collected from six borings and analyzed with an onsite gas chromatograph for select volatile organic compounds (VOCs). Ketones and chlorinated hydrocarbons were detected in soil samples collected below the water table. Five new monitoring wells were installed at the boring locations. No VOCs were detected in groundwater from these wells. The GTI investigation indicated that soils immediately adjacent to the sump and groundwater below and further downgradient, east of Building 2890, were contaminated with ketones, chlorinated solvents, and BTEX compounds. Monitoring wells associated with Site SS-016 are provided on Figure 4.



5.1.3 Site Investigation

Based on the results of GTI's study, E.C. Jordan Co. was contracted to perform a Site Investigation (SI) in late 1987 (E.C. Jordan 1989). The study included a soil gas survey, the completion of four soil borings, and the installation of three new wells (Figure 4).

Groundwater samples were collected from the three newly installed wells and six GTI wells. No VOCs or low concentrations of VOCs were detected in most wells with the exception of GTI-2, located about 100 feet east of Building 2890. Total VOCs detected in GTI-2 were 58,248 parts per billion (ppb), with ketones making up 58,000 ppb of the total. E.C. Jordan recommended further investigation to fully characterize the Site.

5.1.4 Remedial Investigation (RI)

URS Consultants, Inc. began performing RI field work in August 1994 (URS, 1995a). Initial RI field activities consisted of abandoning the monitoring wells installed by GTI, advancing nine soil borings, installing of four new groundwater monitoring wells (Figure 4), and collecting five surface soil, 10 subsurface soil, and 14 groundwater samples for analysis. Table 2 summarizes the results from contaminated well MW-16-004.

Four surface soil samples were collected around the former waste accumulation area concrete pad near the southeast corner of Building 2890; the fifth surface soil sample was collected at a background location. The only compounds detected at concentrations exceeding New York State soil cleanup guideline values (NYSDEC 1994) were benzo(a)pyrene, dibenz(a,h)anthracene, and chromium.

The ten subsurface soil samples were collected primarily from borings east and northeast of Building 2890. No compounds were detected at concentrations exceeding their respective NYSDEC soil cleanup guideline values.

The seven onsite monitoring wells (MW-16-001 through MW-16-007, Figure 4) were sampled twice during the RI (January and February 1994). No pesticides or polychlorinated biphenyls (PCBs) were detected in any of the samples. Low concentrations of VOCs, semi-volatile organic compounds (SVOCs), and metals were detected in a majority of the wells with the exception of MW-16-004. MW-16-004 was the replacement for well GTI-2 and the same suite of VOCs detected in GTI-2 was also found in MW-16-004. However, total VOC concentrations in MW-16-004 were an order of magnitude lower when compared to the SI sample from GTI-2.

In response to regulatory agency comments on the Draft RI Report, supplemental field activities were conducted in September and October 1995 that included advancing six additional borings, advancing a boring to the bottom of the concrete-filled sump, installing a downgradient well pair (MW-16-008 and -009) between the Site and off-base groundwater users located at Kemp Lane, and collecting four subsurface soil samples, one remnant liquid sample from the sump, and six groundwater samples for analysis.

Table 2
1994-2000 Summary of Groundwater Exceedances at MW-16-004

Sample Location	NYSDEC Class GA	MW-16-004					
Date of Collection	Groundwater Standards	1994	1995	1997	1998	1999	2000
VOCs (µg/L)							
1,2-dichloroethene	5	33	10	11	6	6	2
acetone	50	16	140	36	23	20	41
ethylbenzene	5	36	8	18	23	16	10
toluene	5	73	38	38	28	40	21
trichloroethene	5	105	55	50	46	52	11
xylene (total)	5	235	79	136	133	109	57
SVOCs (µg/L)							
4-methylphenol	1	95	--	14	66	87	61
naphthalene	10	150	--	152	189	147	122

Notes:

-- = the analyte was not analyzed for.

 = Shading indicates substance exceeded NYS Groundwater Standards or Guidance values.

To more fully characterize the subsurface soil contamination at Site SS-016, four borings were advanced in the vicinity of the concrete-filled sump. Three borings were advanced through the concrete floor inside Building 2890 and one boring was advanced outside the north wall of the building near the sump. Boring SB-16-006 was located adjacent to the concrete-filled sump. Soil samples in the vadose and saturated zones beneath the sump contained high concentrations of ketones, chlorinated solvents, BTEX, and naphthalenes. Slightly downgradient of the sump, higher concentrations of similar compounds were detected at and below the water table in SB-16-009. An additional boring was advanced to the bottom of the concrete-filled sump where a residual liquid sample was collected. The compounds detected in the residual liquid sample matched those detected in the groundwater and soils adjacent to and downgradient from the sump.

A third round of groundwater samples was collected in September 1995 from six wells (MW-16-004, -005, -008, -009, PZ-2S, and PZ-2I). The purpose of the third round of sampling was to determine the extent of groundwater contamination, especially in the direction of the Kemp Lane groundwater users. The suite of volatile compounds observed in the third round samples from MW-16-004 and -005 were similar to those detected in the second round samples collected from these wells, but at slightly lower concentrations. The two well/ piezometer pairs located between Building 2890 and Kemp Lane monitored the top (MW-16-008 and PZ-2S) and near bottom (MW-16-009 and PZ-2I) of the unconfined sand aquifer. The only organic compounds detected in these wells/piezometers were 1,2-dichloroethene (DCE) and trichloroethene (TCE) in PZ-2I, but at concentrations below their respective groundwater standards.

The Draft-Final RI Report (URS, 1995a) concluded that the major source of contamination at Site SS-016 was the former underground sump that ruptured on March 26, 1987, although it was noted that below-grade piping and floor drains probably also leaked during the active period of operations at Nose Dock 8. Soil contamination in the vadose zone at the Site was believed to be limited to the immediate vicinity of the former sump and below-grade pipes inside the northeast corner of Building 2890. It was also concluded that vadose zone soils east and northeast of Building 2890 and at the former waste accumulation area did not exhibit significant contamination and did not represent a source for groundwater contamination. Assessment of direct receptor contact with onsite soils indicated that no excess risk is posed to human or ecological receptors by this media. The most concentrated area of groundwater contamination was located horizontally within 100 feet downgradient (east) of the former sump and vertically within the upper 20 to 25 feet (below ground surface) of the unconfined sand aquifer. A Human Health Risk Assessment performed for Site SS-016 indicated unacceptable risks for groundwater use at the Site. The Draft Final RI Report recommended that quarterly monitoring of downgradient wells for TCE and DCE was warranted and an Engineering Evaluation/Cost Analysis (EE/CA) should be performed to evaluate feasible alternatives to address onsite source contamination.

5.1.5 Informal Technical Information Report – September 1996 Groundwater Sampling

In response to regulatory agency comments to the Draft Final RI Report, three additional monitoring wells (MW-16-010 through MW-16-012) were installed (Figure 4) to help delineate the extreme downgradient extent of the SS-016 groundwater contaminant plume (URS, 1997a). The wells were installed in August 1996. A supplemental groundwater sampling event was conducted on September 26, 1996 which included sampling of MW-16-008 through MW-16-012, PZ-2S, PZ-2I, and MW-31-007. TCE and DCE were detected in shallow well MW-16-010 at concentrations slightly above their respective groundwater standards. The report concluded that historical nondetection of chlorinated hydrocarbons in well MW-16-007 (located upgradient of MW-16-010 and screened in the central portion of the unconfined sand aquifer) indicated that a shallow groundwater contaminant plume existed and contaminants might be passing above the screen of well MW-16-007. No VOCs were detected in the well pairs located between SS-016 and Kemp Lane (MW-16-008/-009 and PZ-2S/-2I). Additional investigations were recommended to delineate the extent of chlorinated hydrocarbon contamination.

5.1.6 Informal Technical Information Report (ITIR) – August 1997 Supplemental Investigation

This investigation was conducted to address the recommendations of the September 1996 Groundwater Sampling ITIR. The investigation included the installation of two additional monitoring well pairs (MW-16-013/-014 and MW-16-015/-016, refer to Figure 4) and sampling of all Site monitoring wells (URS 1998a). In addition, three composite soil samples were collected around two former hazardous material storage containers north of Building 2890 and at the former fresh product drum storage area northwest of Building 2890. Because only two metals (barium and lead) and three polycyclic aromatic hydrocarbons (PAHs) were detected

slightly above to be considered (TBC) criteria (NYSDEC 1994) in the soil samples collected, the soils around the former hazardous material storage containers and former new product drum storage area were not considered to be a source of groundwater contamination or at levels that significantly threatened human health or the environment.

Nineteen groundwater samples were also collected. TCE and/or DCE were detected at concentrations above their respective groundwater standards in MW-16-004 (Table 2) and new monitoring well MW-16-014. The plume of chlorinated hydrocarbons appeared to extend at least 1,700 feet downgradient from Building 2890 at concentrations above regulatory standards. However, this round of groundwater data did show a significant decrease (as compared to historical sampling data) in chlorinated hydrocarbon concentrations in the source area. This decrease was attributed to the groundwater treatment system which began operation in January 1997. The ex-situ groundwater treatment system (air stripping and carbon adsorption) was a component of a treatability study that also included a SVE system. Section 5.3 details the SVE and groundwater treatability study and groundwater treatment system operation.

5.1.7 Supplemental Evaluation and Feasibility Study (SE/FS)

In 2000-2002, a SE/FS was conducted to: 1) summarize data from the environmental activities that have occurred at Site SS-016; 2) evaluate potential risk posed to human health and the environment from contaminated soil and groundwater given a residential reuse scenario; and 3) evaluate remedial alternatives to further address contaminated soil and groundwater at the Site. To support the goals of the study and to address various concerns expressed by the USEPA and NYSDEC, supplemental investigation field activities were conducted that included installing five new wells (Figure 4), advancing four soil borings inside Building 2890, collecting 18 soil samples from the four borings inside Building 2890, 24 groundwater samples, and extensive hydrogeologic testing (slug tests, pump test, and potentiometric surface assessment)(URS, 2002a).

Although the SE/FS identified SVE/Bioventing of Vadose Zone Soils and Enhanced In-situ Bioremediation of groundwater as the preferred alternative, this alternative was not implemented, and operation of the existing treatment system (which included SVE and an ex-situ groundwater treatment system (air stripping and carbon adsorption)) was continued.

5.2 Summary of Site Contamination from Previous Investigations

5.2.1 Vadose Zone Soil

Analytical results of surface soils sampled as part of the RI showed low levels of acetone, polycyclic aromatic hydrocarbons (PAHs), and phthalates in a few samples obtained from the former waste accumulation area (refer to Figure 2). Reported concentrations of benzo(a)pyrene and dibenz(a,h) anthracene exceeded TBCs (NYSDEC 1994) in one sample and chromium in another sample. Both samples were located near the former waste accumulation area. Analytical

results of subsurface soil samples collected adjacent to the former sump as part of the RI showed concentrations of TCE, xylenes, naphthalene, and 2-methylnaphthalene above TBCs. Soil TBCs were not exceeded in any other subsurface soil samples collected at the Site.

In 1997, surface and near surface soils around the former hazardous material storage containers and former new product drum storage area (refer to Figure 2) were sampled. Only two metals (barium and lead) and three PAHs were detected at concentrations slightly above TBCs.

Soil contaminant concentrations detected in samples collected from borings during the 2000 – 2002 SE/FS were compared to NYSDEC-Technical and Administrative Guidance Memorandum (TAGM) recommended soil cleanup objectives (NYSDEC 1994). No chemicals were detected at concentrations exceeding their respective Recommended Cleanup Objectives and only four chemicals (2-butanone, phenol, 4-methyl phenol, and benzo(b)fluoranthene in SB-16-013) were detected slightly above Allowable Soil Concentration (ASC) screening levels at 10-12 feet. SB-16-013 was located adjacent to the former sump, and likely within the zone of seasonal groundwater table fluctuation.

5.2.2 Groundwater

A comprehensive groundwater sampling event undertaken in 2000, as part of the SE/FS (URS, 2002a), indicated that MW-16-004 and -14 were key performance monitoring wells for indicating the presence/absence and migration of groundwater contamination at the Site (Figure 4). MW-16-004 is the nearest downgradient well to the former underground sump inside Building 2890 and MW-16-014 is the furthest downgradient well. Prior to 2000, sampling of 20 monitoring wells in the vicinity of MW-16-004 (source area) and -014 (furthest downgradient well) indicated that exceedances of the New York State Groundwater SCGs for Site contaminants including 1,2-DCE and TCE were reported in monitoring wells MW-16-006, -007, and -010. Following 1996, MW-16-014 was the only downgradient well with exceedances of contaminants of concern.

Based on the results from the 2000 comprehensive sampling round, MW-16-004 has continued to be sampled routinely as part of the interim response actions, and MW-16-014 has been sampled occasionally. Historically, contamination has been detected above New York State Groundwater SCGs at Site SS-016 at wells MW-16-004 and -014. Ethylbenzene, xylenes, naphthalene, 1,2-dichloroethene, and trichloroethene contaminants were historically detected in MW-16-004 at concentrations that exceeded their respective New York State Groundwater SCGs (NYSDEC, 1998a).

The extent of Site SS-016 groundwater contamination that was considered to have the potential to impact human health or the environment extended less than 250 feet downgradient of the former sump located inside Building 2890 and less than 150 feet wide perpendicular to groundwater flow (an area of somewhat less than an acre).

5.3 Interim Removal Actions

Based on the results of the RI, a treatability study was initiated at the Site in 1996. In April 1999, the concrete filled sump and approximately 11.5 cubic yards of contaminated soil were removed from Nose Dock 8, and the excavation was backfilled with clean fill. The excavation was then capped with a concrete floor.

5.3.1 Engineering Evaluation/Cost Analysis (EE/CA)

To support a “non-time-critical” removal action to address potential negative impacts from groundwater contamination attributable to Site SS-016, an EE/CA was initiated to evaluate and select interim actions.

A *Draft Nose Dock 8 (SS-016) EE/CA Report* was prepared in February 1995 to select the best alternative to accomplish a “non-time-critical” removal action to address potential negative impacts from groundwater contamination attributable to Site SS-016 (URS, 1995c). Two alternatives combining pump and treat and SVE technology were developed to address site contamination. The alternatives differed in the mode of discharge of treated groundwater; Alternative 1 specified discharge to surface water and Alternative 2 specified discharge to groundwater.

5.3.2 Soil Vapor Extraction and Groundwater Treatability Study

In 1996, the USAF, in consultation with the USEPA and NYSDEC, implemented Alternative 2 of the EE/CA as a treatability study to assess the potential effectiveness of SVE application and pump and treat technology at Site SS-016. The treatment system consisted of a 8 inch single well located near the underground sump inside Building 2890 for both SVE and groundwater extraction. During operation, the average groundwater extraction rate ranged from 5 to 15 gpm. Groundwater was extracted to lower the water table in the area of the sump to expose contaminated soil for SVE. Treatment of the collected groundwater was performed via air stripping and carbon adsorption before being discharged to three infiltration galleries located outside of the building. SVE consisted of a 400 cfm blower drawing from the extraction well situated inside Building 2890. This system was installed as a full-scale treatability study in accordance with the approved *Nose Dock 8 (SS-016) Work Plan* (URS, 1996). Operation of the system as a treatability study began on January 6, 1997 and was concluded on October 5, 1997.

A Treatability Study Report (URS, 1997b) was prepared that presented the results and conclusions from the treatability study conducted at Site SS-016. The report also recommended continued operation of the systems and recommended system improvements and operating modifications. These modifications would ensure continued and effective operation of the system when operated beyond the nine-month treatability study period.

The groundwater cleanup progress was evaluated by examining analytical data from well MW-16-004. VOC concentrations in MW-16-004 generally showed decreasing trends during the course of the treatability study.

Another objective of the treatability study was to evaluate use of SVE to reduce the quantities of contaminants in the vadose zone that could impact groundwater quality. An analysis of the SVE exhaust air samples indicated that SVE was effective in removing VOCs from contaminated vadose zone soils.

Following completion of the treatability study, the treatment system remained in nearly continuous operation (24 hours per day, 7 days per week) until November 2006, with some periodic interruptions for maintenance.

5.3.3 Draft Final Engineering Evaluation/Cost Analysis

A *Draft Final Nose Dock 8 (SS-016) EE/CA* Report was issued in April 1998 (URS, 1998c). This revised EE/CA was based on data collected during the RI (URS, 1995a), the two Informal Technical Information Reports (URS, 1997a and URS, 1998a), the Draft Final Treatability Study Report (URS, 1998b), and treatment system operations data collected subsequent to the Treatability Study. The revised EE/CA compared continuation of the existing treatment system at Site SS-016 with monitored natural attenuation. Monitored natural attenuation was recommended; however, this recommendation was not accepted by NYSDEC and USEPA. Consequently, the treatment system continued in constant operation until November 2006.

5.3.4 Sump Removal

The removal of the concrete-filled sump and some surrounding soils was conducted in April and May 1999 by J & D Enterprises of Duluth, Inc. (J&D) and Adirondack Environmental Associates (AEA) to remove the potential source and to enhance the effectiveness of the SVE and groundwater treatment system. The equipment removal details were presented in two reports (AEA, 1999 and OHM, 2001).

Removal activities commenced in late April 1999 with the breaking up and removal of the concrete-filled sump inside the northeast corner of Building 2890. Observations during the sump removal indicated that leakage had occurred from the base of the sump and from the location where a six-inch diameter pipe (connecting the sump to a grated drain trench) entered the south side of the sump. Visual staining was limited to the immediate vicinity of the sump and appeared to migrate vertically to the water table. This was consistent with observations from RI soil borings performed in the vicinity of the sump (URS, 1995a). Soils beneath the sump were excavated to the water table. The base of the sump was 9 feet below the concrete floor. Approximately 11.5 cubic yards of soil, with photoionization detector (PID) readings over five parts per million (ppm), were excavated and properly disposed of. Details regarding the disposal of the sump concrete and excavated soil are given in the Closure Report (OHM, 2001).

The SVE and groundwater treatment system continued operation during and following the sump removal.

5.3.5 SVE and Groundwater Treatment Interim Response Actions

Although the treatability study concluded in October 1997, the SVE and pump and treat system remained in operation until November 2006. The SVE continued to treat residual vadose soil contamination remaining following the 1999 sump removal. The SVE focused on an area near the sump and previously leaking below-grade piping.

The groundwater treatment system served to reduce contamination at the source and prevent the migration of contaminated groundwater. Simultaneously with the SVE system, the groundwater extraction well continued to extract groundwater at an average rate of approximately 5-15 gpm to lower the water table and enhance the effectiveness of SVE on contamination in soil below the static water table. An air stripping and activated carbon system was originally installed to treat groundwater before reinjection to downgradient groundwater via three infiltration galleries. As contamination levels decreased in extracted groundwater, operation of the air stripper alone was sufficient.

Operations data was collected since the conclusion of the treatability study and summarized in monthly, and later quarterly, operations reports. These reports detail: the operational status of the treatment system; maintenance activities; routine monitoring results for samples collected from SVE exhaust air, influent and effluent groundwater, and downgradient groundwater from monitoring well MW-16-004; and removal progress based upon the routine monitoring analytical results.

5.4 Groundwater Performance Monitoring

As previously stated, the combination of SVE and groundwater pump and treatment system remained in continuous operation from December 1996 to November 2006 with only some minor interruptions for maintenance and periodic process and performance monitoring.

Influent and effluent samples were collected on September 26, 2006 (URS, 2007b) and were analyzed for VOCs and SVOCs. No samples exceeded either New York State Groundwater SCGs or federal MCLs during this sampling event. Since restoration activities began in 1996, groundwater contaminant concentrations have steadily decreased. In the most recent sampling events, no compounds were detected in the performance monitoring wells (MW-16-004 and -014, Figure 4) at concentrations exceeding New York State Groundwater SCGs or federal MCLs. A groundwater sample collected from performance monitoring well MW-16-004 on January 27, 2007 showed acceptable groundwater quality as indicated by four sampling rounds spanning the prior two-year period. Similarly, groundwater samples collected from MW-16-014 in 2005 and 2006 demonstrated that levels of 1,2-DCE have stabilized to concentrations below the NYSDEC Groundwater standard and federal MCL. Table 3 summarizes the most recent sampling events for MW-16-004 and -014. Figure 5 illustrates the monitoring wells and past VOC detections.

5.5 Soil Treatment

Overall, contamination in the vadose zone soils underneath Building 2890 has been mitigated both by SVE, operating continuously since the treatability study was initiated in 1996, and the sump equipment removal in 1999. This is demonstrated by comparing PID readings and analytical results of soil samples from borings advanced before (1993-1995) and after (2000) the initiation of response activities (Figure 5).

As previously discussed, groundwater monitoring has shown that applicable New York State Groundwater SCGs and MCLs have been achieved. Therefore, it was deemed appropriate by the Air Force, in consultation with the USEPA and the NYSDEC, to collect soil and soil gas samples from the vadose zone near areas previously impacted. Confirmatory soil samples were collected in 2007 to: characterize the vertical profile for potential remaining soil contamination above the water table under Building 2890; to verify that groundwater will not be impacted in the future by potential vadose zone soil contamination; and to evaluate the progress of treatment in the vadose zone under the building (URS, 2006).

Seven soil borings (Figure 6) were advanced inside Building 2890 on January 9, 2007. The laboratory analytical results from the seven new soil borings (i.e., SB-16-014 through -020) are summarized in Table 4. As indicated, there were no exceedances of the 6 NYCRR Part 375-6.8 Soil Cleanup Objectives in any of the samples.

A single sub-slab soil gas sample was also collected to assess whether or not soil vapor intrusion may be occurring within Building 2890. Five VOCs were detected at concentrations that do not pose an adverse potential for soil vapor intrusion [acetone ($81 \mu\text{g}/\text{m}^3$), chloromethane ($4.1 \mu\text{g}/\text{m}^3$), dichlorodifluoromethane ($5.4 \mu\text{g}/\text{m}^3$), methylene chloride ($49 \mu\text{g}/\text{m}^3$), and trichlorofluoromethane ($2.4 \mu\text{g}/\text{m}^3$)].

Table 3
2005 - 2006 Summary of Analytical Groundwater Data

Sample Location	NYSDEC Class GA Groundwater Standards	MW-16-004						MW-16-014			
Date of Collection		Mar-05	Jul-05	Sep-05	Dec-05	Sep-06	Jan-07	May-05	May-05	Aug-05	May-06
VOCs (µg/L)											
1,2-Dichloroethene (cis)	5	1.26	0.16	U	0.39	U	U	2.77	3.40	5.90	3.61
Acetone	50	1.30	1.40	2.90	3.06	2.11	2.27	U	U	U	U
Cyclohexane	NA	0.67	0.33	0.24	0.50	U	U	U	U	U	U
Ethylbenzene	5	6.02	1.20	2.10	4.35	0.40	0.35	U	U	U	U
Isopropylbenzene (Cumene)	5	3.45	0.17	0.76	0.48	0.16	0.57	U	U	U	U
Methylcyclohexane	NA	2.02	1.30	0.60	0.85	0.17	0.35	U	U	U	U
Methylene Chloride	5	U	U	0.20	U	U	U	U	U	U	U
Tetrachloroethene	NA	U	U	U	U	0.10	U	U	U	U	U
Toluene	5	3.30	U	U	U	U	U	U	U	U	U
Trichloroethene	5	0.30	U	U	0.19	U	U	0.55	0.64	1.00	0.43
Xylene (total)	5	36.70	0.58	2.06	4.75	U	U	U	U	U	U
SVOCs (µg/L)											
1,1'-Biphenyl	5	3.22	U	3.9	2.2	2.42	2.38	U	U	U	U
2-Methylanthalene	50	13.1	U	U	U	U	U	U	U	U	U
bis(2-Ethylhexyl)Phthalate	5	1.25	61.1	U	1.06	1.23	U	U	U	U	U
Di-n-butylphthalate	50	U	U	U	1.21	1.62	U	U	U	U	U
Naphthalene	10	58.7	1.56	U	U	U	U	U	U	U	U
Pentachlorophenol	NA	1.04	U	U	U	U	U	U	U	U	U

Notes:

NA - Groundwater Standard not available.

U - The analyte was analyzed for, but not detected.

Shading indicates substance exceeds NYS Groundwater Standards or Guidance Values

Table 4
Confirmatory Soil Boring Analytical Results

Sample Location	NYSDEC TAGM #4046 Guidance Values	SB-16-014	SB-16-015	SB-16-016	SB-16-017	SB-16-018	SB-16-019	SB16-020
Date Sample		1/9/07	1/9/07	1/9/07	1/9/07	1/9/07	1/9/07	1/9/07
VOCs (µg/kg)								
Acetone	200	45.3 J	17.6 F	67 J	15.5 J	17.9 J	49.5 J	13.2 F
Methylcyclohexane	NA	9.7 J	U	13.2 J	U	U	U	U
Methylene chloride	100	5.6 J	U	U	6.9 J	U	U	U
Tetrachloroethene	1,400	12.2 J	U	U	U	U	U	U
Toulene	1,500	4.0 J	U	U	U	U	U	U
SVOCs (µg/kg)								
bis(2-Ethylhexyl) phthalate	50,000	190 J	370 J	430 J	U	800 J	1,200 J	1,100 J
Caprolactam	50,000	U	U	U	48 J	U	U	U
Phenanthrene	50,000	180 J*	U	U	U	U	U	U
Pyrene	50,000	57 J	U	37 J	U	U	U	U

Notes:

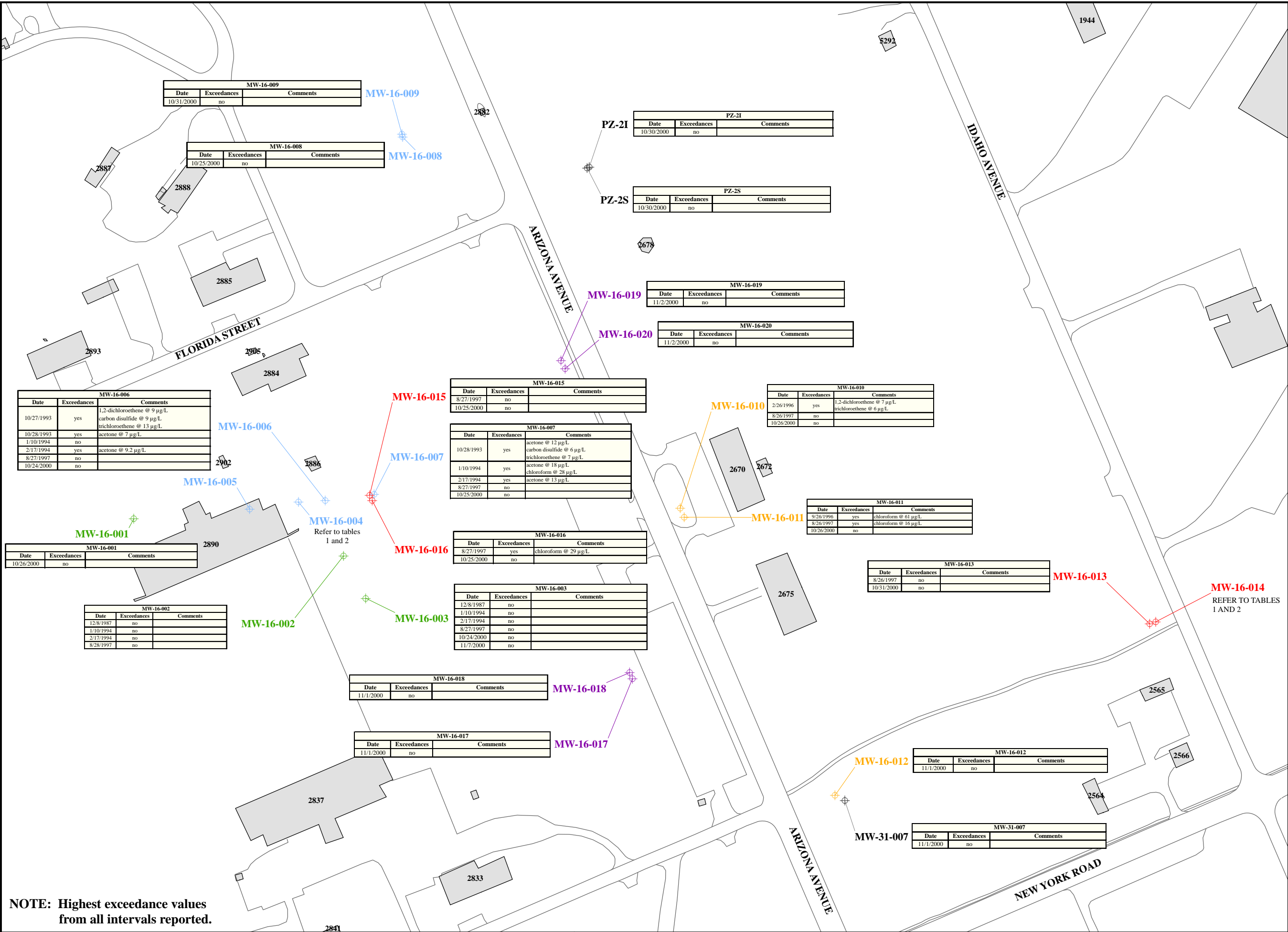
* - Higher numerical result reported from the duplicate sample.

F - The analyte was positively identified, but the associated numerical value is below the reporting limit.

J - The analyte was positively identified, but the quantitation is an estimate.

NA - Value not available.

U - The analyte was analyzed for, but not detected.



Site

Location Map

Key Features

MONITORING WELLS

- Site Investigation, 1987
- Wells Installed as part of other IRP Investigations, 1992-1995
- Remedial Investigation, 1993-1995
- ITIR, 1996
- ITIR, 1997
- Supplemental Investigation, 2000

Facility

United States Air Force
Former Plattsburgh Air Force Base
Plattsburgh, New York

FIGURE 5

HISTORIC GROUNDWATER SAMPLING LOCATIONS AND VOC EXCEEDANCES

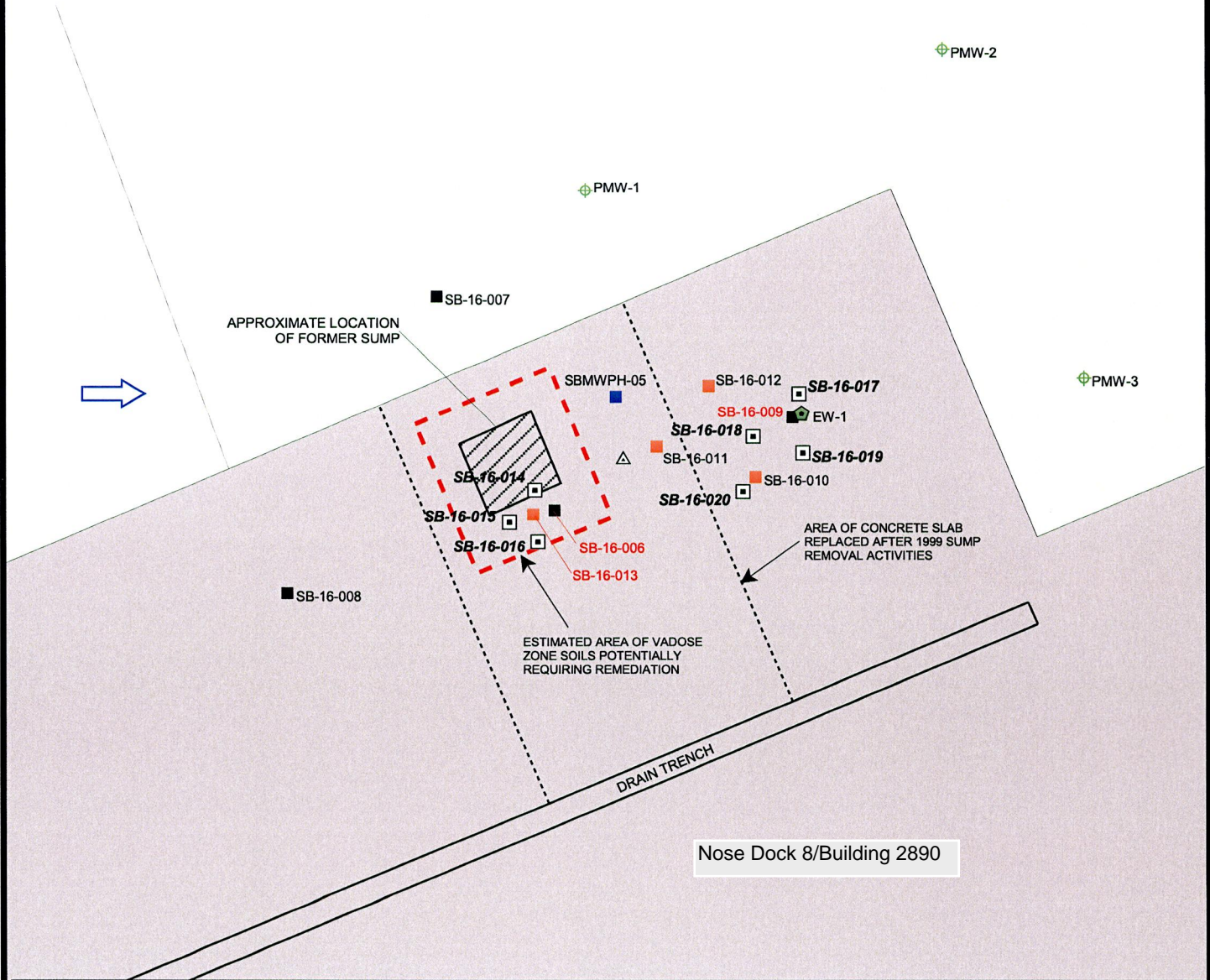
FPMgroup

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NOTE: Highest exceedance values from all intervals reported.

Vadose Zone Soil Contamination Description for Specific Boring Locations

- SB-16-006 - Contaminated soils removed to 11' depth below grade during 1999 sump removal. Possible residual vadose zone soil contamination from 11' depth to water table (13' depth).
- SB-16-009 - Vadose zone soil contamination has been shown to be remediated by SVE system based upon analytical data from year 2000 borings nearby.
- SB-16-013 - Vadose zone soil contamination from 10' depth to water table (13' depth).



Legend

- △ Sub-Slab Soil Gas Sample Location (2006)
- Confirmatory Soil Boring (2007)
- Soil Boring (1993)
- Soil Boring (1995)
- Soil Boring (2000)

- ⊕ Pressure Monitoring Well Boring (1996)
- ⊕ Soil Vapor Extraction/Groundwater Pumping Well (1996)
- ← Groundwater Flow Direction

NOTE: SB-16-013 - Indicates soil boring with Vadose Zone soils requiring remediation
SB-16-008 - Indicates soil boring with Vadose Zone soils not requiring remediation

10 0 10 Feet

URS

PLATTSBURGH AFB
PREVIOUS VADOSE ZONE SOIL BORING LOCATIONS
IN THE NORTH EAST CORNER OF NOSE DOCK 8 AND
PROPOSED CONFIRMATORY SOIL BORING LOCATIONS

FIGURE 6

5.6 Site Surface Water and Groundwater Hydrology

5.6.1 Surface Water Hydrology

Plattsburgh AFB lies within the Lake Champlain drainage basin. The dominant surface water features in the vicinity of Plattsburgh AFB are the Saranac River to the north, the Salmon River to the south, and Lake Champlain to the east. The Saranac and Salmon Rivers, which discharge into Lake Champlain, originate west of Plattsburgh AFB in the Adirondack Mountains. A network of drainage ways carries surface water runoff from the base into sewers and streams that lead to off base areas.

5.6.2 Site Drainage

The surface drainage at Site SS-016 is controlled by both topography and drainage features engineered during the base's construction. Topography slopes to the southeast and storm drains surrounding the Site collect runoff and transport it east to Arizona Ave. and then south into the Gold Course Drainage Area (URS, 1995).

5.6.3 Hydrogeologic Setting

Groundwater in the vicinity of Plattsburgh AFB occurs in both overburden deposits and bedrock. Hydrologically, the stratigraphic sequence can be divided into the following units from top to bottom: the unsaturated zone, the unconfined sand aquifer, the clay confining layer, the confined till water-bearing zone, and the confined bedrock aquifer. Groundwater movement in these units is controlled by aquifer characteristics, infiltration, and run-off. Groundwater around the Site SS-016 flows east towards Arizona Ave.

6.0 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USE

The Plattsburgh Airbase Redevelopment Corporation is responsible for maintaining base property, marketing and controlling base reuse, leasing and managing property, and developing base facilities, as necessary, to promote advantageous reuse. The planned future land-use designations for Site SS-016 is aviation support. The runway/flightline area, located west of Site SS-016 (Figure 1), will become part of the relocated Clinton County Airport, and thus Site SS-016 will be subject to Federal Aviation Administration restrictions.

7.0 SUMMARY OF SITE RISKS

Risks posed to human health were evaluated in the SE/FS (URS, 2002a) based on a potential future residential reuse scenario. Risks posed to ecological receptors in the vicinity of Site SS-016 were evaluated in the RI (URS, 1995a). These assessments are baseline assessments in which potential risks were examined assuming no remedial action is taken. The assessments are discussed below.

7.1 Human Health Risk Assessment

A four-step process is utilized for assessing Site-related human health risks for a reasonable maximum exposure scenario: *Hazard Identification* – identifies the contaminants of concern at a site based on several factors such as toxicity, frequency of occurrence, and concentration. *Exposure Assessment* estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well water) by which humans are potentially exposed. *Toxicity Assessment* determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). *Risk Characterization* summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks.

The human health risk assessment (HRA) follows federal (USEPA) regulations and guidelines to estimate the potential carcinogenic (i.e., cancer-causing) and adverse non-carcinogenic health effects due to potential exposure to site contaminants of concern from assumed exposure scenarios and pathways. An excess upper bound lifetime cancer risk to an individual is generally considered acceptable if it is between 10^{-4} and 10^{-6} using information on the relationship between dose and response. The guidance also specifies a maximum health hazard index (which reflects noncarcinogenic effects for a human receptor) less than or equal to 1 to be acceptable. The hazard index is a representation of risk, based on a quotient or ratio of chronic daily intake to a reference (safe) dose. A hazard index greater than 1 indicates a potential for adverse noncarcinogenic health effects.

An HRA was performed during the SE/FS (URS, 2002) that evaluated potential human exposure to soil and groundwater contamination at Site SS-016 under a future residential reuse scenario. The assessment used the most current soil and groundwater data available. Six exposure pathways were assessed including:

- Ingestion of contaminated soil

- Dermal contact with and adsorption of contamination from soil

- Inhalation of contaminants volatilizing from soil migrating into indoor air

- Ingestion of contaminated groundwater

Dermal contact with and absorption of contamination from groundwater

Inhalation of contaminants volatilizing from groundwater and migrating into indoor air

Calculated pre-treatment cancer and non-cancer risks are summarized on Table 5. The total exposure cancer risk combining all soil and groundwater pathways was estimated at 7×10^{-5} . This risk falls within the range of cancer risks (10^{-4} to 10^{-6}) that is considered acceptable under Section 300.430 of the NCP. The total exposure hazard index was initially estimated at 9, which falls above USEPA's target threshold hazard index of 1. This potential excess non-cancer risk resulted from the ingestion of naphthalene and 4-methylphenol in drinking water. However, as stated in Section 5, recent groundwater data from 2005 through 2007 indicate that there are no exceedances of either the New York State Groundwater SCGs or federal MCLs. Also, pre-treatment hazard indices for soil and other groundwater pathways fall below the target hazard index of 1.

7.2 Ecological Risk Assessment

A screening level ecological risk assessment was performed in the RI (URS, 1995a) to evaluate impact of exposure to contaminated soil on terrestrial organisms. The assessment evaluated the exposure of four representative species (meadow jumping mouse, raccoon, red fox, and common crow) to unpaved contaminated surface soil at Site SS-016.

A four-step process is utilized for assessing site-related ecological risks for a reasonable maximum exposure scenario: *Problem Formulation* is a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. *Exposure Assessment* is a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations. *Ecological Effects Assessment* uses literature reviews, field studies, and toxicity tests to link contaminant concentrations to effects on ecological receptors. *Risk Characterization* measures or estimates current adverse effects.

The results of the ecological assessment are expressed as a Hazard Quotient (HQ). HQ values for all representative species were calculated to be less than 1, thereby indicating limited Site-related risk to ecological receptors.

Table 5
SS-016 (Nose Dock 8)
Summary of Risks¹

Exposure Pathway	Cancer Risk	Hazard Index
Soil		
Ingestion of Soil	6.E-06	0.01
Dermal Contact of Soil	3.E-05	0.03
Inhalation of Soil Vapors in Indoor Air	1.E-09	0.01
TOTAL EXPOSURE CANCER RISK – SOIL	4.E-05	-
TOTAL EXPOSURE HAZARD INDEX – SOIL	-	0.05
Groundwater		
Ingestion of Groundwater	2.E-05	8
Dermal Contact with Groundwater	6.E-07	0.5
Inhalation of Groundwater Vapors in Indoor Air	1.E-05	0.8
TOTAL EXPOSURE CANCER RISK – GROUNDWATER	3.E-05	-
TOTAL EXPOSURE HAZARD INDEX – GROUNDWATER	-	9
TOTAL EXPOSURE CANCER RISK	7.E-05	-
TOTAL EXPOSURE HAZARD INDEX	-	9

NOTES:

1 = The presented values represent pre-cleanup risks.

- = Soil consists of surface and subsurface soil combined.

= Indicates hazard index for the pathway exceeds USEPA's target threshold index of 1.

8.0 SELECTED REMEDY

The USAF has selected *No Further Action* at Site SS-016, Nose Dock 8.

As a result of the removal activities and the continued operation of the treatment system, the contaminated soil and groundwater found during previous investigations were removed. The remaining concentration of chemicals detected in the soil do not exceed 6 NYCRR Part 375-6.8 Soil Cleanup Objectives and pose no current or potential future threat to public health or the environment.

Groundwater data has confirmed that previously detected contamination has attenuated to either non-detect or levels below the New York State Groundwater SCGs and federal MCLs, thus the groundwater poses no current or potential threat to public health or the environment.

9.0 STATUTORY DETERMINATIONS

The selected remedy for Site SS-016 is protective of human health and the environment and complies with federal and state applicable or relevant and appropriate requirements.

10.0 DOCUMENTATION OF SIGNIFICANT CHANGES

There are no significant changes between the preferred alternative presented in the Proposed Plan for Site SS-016 and the selected remedy presented in this ROD.

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GLOSSARY

Administrative Record: A file established and maintained in compliance with section 113(K) of the Comprehensive Environmental Response, Compensation, and Liability Act consisting of information upon which the lead agency bases its final decisions on the selection of remedial method(s) for a site. The Administrative Record is available to the public.

Adsorption: The assimilation of a gas, solid or dissolved matter through a surface (such as skin).

Aerobic: Conditions that exist in the presence of free oxygen.

Applicable Requirements: Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable. See also Relevant and Appropriate Requirements.

Aquifer: A water-bearing formation or group of formations.

Bedrock: Rock that underlies soil or other unconsolidated material.

Chlorinated Hydrocarbons: Organic compounds that contain chloride such as trichloroethene (TCE) and dichloroethene (DCE). Also referred to as chlorinated solvents.

Collection/Treatment: Collecting and treating groundwater to remove contaminants. Collection can be accomplished by wells or trenches. For volatile organic compounds, treatment is usually by air stripping or carbon polishing; cleaned water is returned to the ground or discharged to nearby surface water.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act requires federal agencies to investigate and remediate releases of hazardous substances.

Confining Layer: A body of impermeable or distinctly less permeable material adjacent to an aquifer or water-bearing zone.

Contaminant Plume: A volume of contaminated groundwater with measurable horizontal and vertical dimensions. Plume contaminants are dissolved in and move with groundwater.

Drainage Basin: A region or area that gathers water originating as precipitation and contributes it to a particular stream channel, system of channels, lake, reservoir, or other body of water.

Electromagnetic Geophysical Survey: An exploration method based on the measurement of alternating magnetic fields associated with currents artificially or naturally maintained in the subsurface.

Environmental Impact Statement: A study conducted to provide information on potential environmental impacts that could result from a proposed action.

Feasibility Study (FS): An evaluation to identify and evaluate appropriate remedial goals and remedial alternatives for a site based upon United States Environmental Protection Agency criteria.

Groundwater: Water found beneath the earth's surface that fills pores within materials such as sand, soil, gravel, and cracks in bedrocks, and often serves as a source of drinking water if found in an adequate quantity.

Hazard Index: A quantitative measure of non-carcinogenic risk associated with exposure to chemicals. The hazard index is determined for all chemicals of concern affecting a particular organ or acting by a common mechanism. If the sum of all hazard indices is less than 1 for a particular exposure scenario, the risk of adverse health effects is considered acceptable.

Hydrogeologic: Pertaining to subsurface waters and the related geologic aspects of subsurface waters.

Infiltration: The flow of a fluid into a solid substance, such as soil or porous rock, through pores or small openings.

Inorganic Compounds: A class of naturally occurring compounds that includes metals, cyanide, nitrates, sulfates, chlorides, carbonate, bicarbonate, and other oxide complexes.

Installation Restoration Program (IRP): The United States Air Force subcomponent of the Defense Environment Restoration Program (DERP) that specifically deals with investigating and remediating sites associated with suspected releases of toxic and hazardous materials from past activities. The DERP was established to clean up contaminated sites at Department of Defense facilities nationwide.

Monitoring: Ongoing collection of information about the environment that helps gauge the effectiveness of a cleanup action. Information gathering may include groundwater well sampling, surface water sampling, soil sampling, air sampling, and physical inspections.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The NCP provides the organization, structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants. The NCP is required under CERCLA and the Clean Water Act, and USEPA has been delegated the responsibility for preparing and implementing the NCP. The NCP is applicable to response actions taken pursuant to the authorities under CERCLA and the Clean Water Act.

National Priorities List: USEPA's list of the most serious uncontrolled or abandoned sites with hazardous substance contamination identified for possible long-term remedial action under the Superfund program.

Operable Unit (OU): A separate and distinct remedial project that is part of a large, complex hazardous waste site. Each OU has its own Record of Decision, remedial investigation, feasibility study, design and construction.

Organic Compounds: Any chemical compounds built on the carbon atom, i.e., methane, propane, phenol, etc.

Overburden: The loose soil, silt, sand and gravel, or other unconsolidated material overlying bedrock.

Pesticide: Chemical compounds used to control insects, rodents, plants, etc. Two classes of organic pesticides include chlorine (chlorinated) or organic phosphorous (organophosphorous).

Polychlorinated Biphenyl (PCB): An organic pollutant that was formerly used in electrical transformers and capacitors, their manufacture was banned in 1979. There are 210 different PCB compounds that typically have 40% to 60% chlorine by weight.

Polycyclic Aromatic Hydrocarbons (PAHs): Compounds often associated with combustion process and distillation tars.

Proposed Plan: A public document that solicits public input on a recommended remedial alternative to be used at a site. The Proposed Plan is based on information and technical analysis generated during the RI/FS. The recommended remedial action could be modified or changed based on public comments and community concerns.

Record of Decision (ROD): A public document that selected and explains the remedial alternative to be used at a CERCLA site. The ROD is based on information and technical analysis generated during the remedial investigation, and on consideration of the public comments and community concerns received on the Proposed Plan. The ROD includes a Responsiveness Summary of public comments.

Remedial Action: An action that stops or substantially reduces a release or threat of a release of hazardous substances that is serious but not an immediate threat to human health or the environment.

Remedial Alternatives: Options evaluated to address the source and/or migration of contaminants to meet health-based or ecology-based remediation goals.

Remedial Investigation (RI): An investigation that determines the nature and extent and composition of contamination at a hazardous waste site. It is used to assess the types of remedial options that are developed in the feasibility study.

Risk Assessment: A systematic scientific process of determining risk estimates based on the presence of contaminants in the environment and who might be exposed to the contaminants.

Semivolatile Organic Compounds (SVOCs): Organic constituents which are generally insoluble in water and are not readily transported in groundwater.

Solvents: Organic liquids used to dissolve grease and other oil-based materials. Many solvents are toxic at high concentrations.

Source: Area at a hazardous waste site from which contamination originates.

Sparging: A remedial action that involves injecting air into the soil's saturated zone below or within the zone of contamination. Contaminants are entrained in the air and may be discharged to the atmosphere at the surface.

Stratigraphic: Pertaining to the arrangement of consolidated or unconsolidated geologic materials as to geographic position and chronologic order of sequence.

To Be Considered (TBC): Federal and state policies, advisories, and other non-promulgated health and environment criteria, including numerical guidance values, that are not legally binding. TBCs are used for the protection of public health and the environment if no specific ARARs for a chemical or other site conditions exist, or if ARARs are not deemed sufficiently protective.

Toxicity: The quality or condition of a destructive, deadly, or poisonous substance.

Vadose Zone: The volume located between the ground surface and the water table. Also known as the unsaturated zone.

Volatile Organic Compounds (VOCs): Organic constituents which tend to volatilize or to change from a liquid to a gas form when exposed to the atmosphere. Many VOCs are readily transported in groundwater.

Water Table: The surface of a body of unconfined groundwater at which the water pressure is equal to that of the atmosphere.

APPENDIX A

TRANSCRIPT OF PUBLIC MEETING

IN RE:)
)
SITE SS-016 NOSE DOCK 8)
PROPOSED PLAN)

PUBLIC MEETING

held on Thursday, August 28, 2008, at the Clinton
County Courthouse, 137 Margaret Street, Plattsburgh,
New York, commencing at 7:05 PM.

Presiding Officer - DAVID S. FARNSWORTH
BRAC Environmental Coordinator
Air Force Real Property Agency
304 New York Road
Plattsburgh, NY 12903

IN ATTENDANCE:

GABY A. ATIK, P.E.
FPM Group
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Rome, NY 13441-4121

WENDY KUEHNER, P.E.
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304 New York Road
Plattsburgh, NY 12903

JOHANNA MASSE, RMR, CRR
Court Reporter



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1 MR. FARNSWORTH: I'd like to begin the public
2 meeting for the proposed plan for Site SS-016 Nose
3 Dock 8.

4 I'm Dave Farnsworth, the BRAC Environmental
5 Coordinator working for the Air Force Real Property
6 Agency of Plattsburgh. I will be presiding over this
7 meeting, the main purpose of which is to allow the
8 public the opportunity to comment on the Air Force's
9 actions for this site.

10 Assisting me in tonight's presentation are
11 Steve Gagnier with the Air Force Real Property Agency
12 and Gaby Atik, the project manager for the FPM Group.
13 We are here to provide answers to technical questions
14 you may have about the remedial alternatives being
15 considered by the Air Force.

16 Tonight's agenda will consist of a summary of
17 data gathered at the site and a description of the
18 preferred remedial action. After that, we will move
19 to the most important part of this meeting, the part
20 where you provide your comments on the remedial
21 action.

22 As you can see, everything being said here
23 tonight is being taken down word for word by a
24 professional court reporter. The transcript will
25 become part of the Administrative Record for the site.

1 We would like everyone to complete the
2 sign-in sheet at the door.

3 At the conclusion of the presentation, we
4 will open the floor to comments and questions. We
5 request that all questions be held to the end of the
6 presentation. If you have a prepared statement, you
7 may read it out loud or turn it in without reading it.
8 In any case, your comments will become part of the
9 record. We have cards at the front table for you to
10 use for written comments. If you turn in any written
11 comments, please write your name and address on them.

12 If you'll put the address up.

13 If you later decide to make a comment, you
14 may send additional comments to us at this address.
15 We will accept comments until September 16th, 2008. I
16 will show this address slide again at the end of the
17 meeting.

18 The final point is that our primary purpose
19 tonight is to listen to you. We want to hear your
20 comments on any issues you are concerned about, and we
21 will try to answer any questions you may have. We
22 want you to be satisfied that the action we take will
23 properly and fully address the problems at the site.

24 Now I'd like to turn the meeting over to Gaby
25 Atik.

1 MR. ATIK: All right. Thank you, Dave.

2 Again, I'm Gaby Atik with FPM Group. We're
3 consultants to the Air Force Real Property Agency of
4 Plattsburgh, and this evening I'm going to review the
5 contents of the proposed plan for SS-016. I'm going
6 to review the overall proposed plan process, the
7 site-specific background information, and then
8 summarize the previous investigations and removal
9 activities, leading to discussion of the groundwater
10 and soil sampling data that supports the
11 recommendation for no further action at Site SS-016,
12 also known as Nose Dock 8.

13 The cleanup process typically starts with a
14 site inspection that confirms the presence or absence
15 of contamination. If the contamination is present,
16 usually you conduct a remedial investigation that
17 delineates the nature and extent, and the information
18 that's collected through these investigations is
19 reviewed and discussed with the USEPA and New York
20 State DEC. The sampling data is compared to guidance
21 values, typically referred to as Applicable Or
22 Relevant and Appropriate Requirements, or ARARs. And
23 then if necessary, a site-specific risk assessment is
24 conducted.

25 Based on the review of the data, the site is

1 then categorized for either no further action, interim
2 removal action, or recommended to move forward in the
3 cleanup process with a feasibility study.

4 Once you have sufficient data, a proposed
5 plan is drafted and coordinated with USEPA and
6 New York State DEC. The proposed plan is issued to
7 the public for input, and once public comments are
8 received, they are addressed, and they are
9 incorporated in a responsiveness summary that is part
10 of the Record of Decision.

11 Finally, the Record of Decision is executed
12 by the Director of the Air Force Real Property Agency
13 and the USEPA Regional Administrator. Also included
14 in the Record of Decision is a New York State DEC
15 concurrence letter.

16 Now that we've reviewed the overall cleanup.
17 process, we're going to review the background
18 information for SS-016, specifically focusing on
19 information that establishes the site as a IRP site.

20 SS-016, also known as Nose Dock 8, is located
21 in the Building 2890. Building 2890 is located within
22 the northeast end portion of the base just east of the
23 flight line. Within Nose Dock 8, aircrafts were
24 staged there for maintenance and painting, and the
25 maintenance activities occurred between 1956 until

07:11:37PM 1 base closure in 1995.

07:11:39PM 2 Chemicals that were used in Nose Dock 8

07:11:43PM 3 included paint thinners, solvents, and paint removers,

07:11:49PM 4 and the major source of contamination at the site was

07:11:53PM 5 the rupturing of a former underground concrete-lined

07:11:57PM 6 sump. That occurred in 1987, and approximately 1400

07:12:02PM 7 gallons of waste solvents leaked into the ground. The

07:12:07PM 8 sump was removed in 1999 with associated contaminated

07:12:12PM 9 soil.

07:12:13PM 10 The next three slides are going to illustrate

07:12:18PM 11 some of the information I just discussed. Slide No. 7

07:12:22PM 12 shows the location of the site in the northeast

07:12:27PM 13 portion of the site just east of the flight line.

07:12:29PM 14 Slide No. 8 illustrates some of the site

07:12:33PM 15 features. The sump location was in the northeast

07:12:39PM 16 corner of Building 2890, and the oval, the red oval,

07:12:47PM 17 illustrates the site boundaries. I will discuss how

07:12:52PM 18 that oval was created in the next slide, which is a

07:12:55PM 19 conceptual site model.

07:12:57PM 20 What we're looking at here on Slide 9 is a

07:13:00PM 21 cross-section of the Nose Dock together with a

07:13:03PM 22 cross-section of the subsurface. The concrete-lined

07:13:07PM 23 sump ruptured, and the solvents that were stored in

07:13:13PM 24 that sump were released to the subsurface. After

07:13:18PM 25 being released to the soil, they migrated to the

1 groundwater, where a groundwater plume was created.
2 The groundwater plume flows in the direction of
3 groundwater from west to east, and essentially the
4 extent of that groundwater contamination was utilized
5 to develop the site boundaries that I mentioned
6 earlier.

7 As we discussed before, the cleanup process
8 includes various types of investigations. As you can
9 see on Slide 10, the investigations at SS-016 started
10 in 1985, and they went on till 2002. The first
11 investigation was the Phase I record search, and the
12 purpose of that was to determine the potential for
13 release of chemicals that were stored or used at the
14 building.

15 Once the sump ruptured in 1987, a sump
16 release investigation followed, and the purpose of
17 that investigation was to determine the absence or
18 presence of contamination in the soil and groundwater.
19 Once contamination was confirmed, a remedial
20 investigation was completed in 1994; and again, the
21 purpose of the remedial investigation was to delineate
22 the nature and extent of contaminants present at
23 SS-016. There was extensive sampling completed during
24 the investigation, including soil, groundwater,
25 surface water, and sediment.

07:14:59PM 1 Once the contamination was confirmed by
07:15:03PM 2 remedial investigation, the Air Force, in coordination
07:15:07PM 3 with the New York State DEC and the USEPA, determined
07:15:11PM 4 that a source removal would prevent the contamination
07:15:17PM 5 from migrating and impacting a larger area. So in
07:15:22PM 6 1996 a treatability study was commissioned, and in
07:15:25PM 7 that study a groundwater extraction and soil vapor
07:15:29PM 8 extraction system was installed to evaluate the
07:15:34PM 9 effectiveness of groundwater extraction together with
07:15:39PM 10 air stripping and using carbon to treat the extracted
07:15:44PM 11 groundwater. The soil vapor extraction was targeting
07:15:48PM 12 the soil contamination.

07:15:50PM 13 The treatment system proved to be effective
07:15:54PM 14 and actually continued to be in operation till 2006,
07:15:57PM 15 and I'll discuss that in the next slide. But before
07:16:00PM 16 we get there, there were a couple additional
07:16:02PM 17 investigations completed in 1997 and in 2000. The
07:16:08PM 18 supplemental investigation and evaluation data was
07:16:12PM 19 used with the previous collected data to evaluate
07:16:17PM 20 various remedial alternatives in the feasibility
07:16:20PM 21 study. The feasibility study also evaluated the risk
07:16:27PM 22 present at the site and recommended that the treatment
07:16:32PM 23 system that was installed in the treatability study in
07:16:37PM 24 1996 continue operating.

07:16:41PM 25 So the treatment system continued to operate

1 till 2006. The groundwater continued to be extracted
2 and treated through air stripping and carbon, and the
3 soil vapor extraction system continued to clean up the
4 subsurface soil. Throughout the treatment process
5 there was extensive performance monitoring where data
6 was collected to monitor the performance of the
7 extraction systems. Both the VOCs and SVOCs were
8 analyzed.

9 Also during that time period in 1999, the
10 sump was completely removed, and during that removal
11 process contaminated soil in the immediate vicinity of
12 the sump was also excavated. About 10 cubic yards of
13 contaminated soil was removed and properly disposed of
14 off-site. Finally in 2007, once the treatment systems
15 were shut down in 2006, there was some soil sampling
16 collected to confirm that there are no residual soil
17 contamination below the slab of Building 2890.

18 Now that we have discussed the various
19 investigation and remedial activities, including a
20 couple of source removal actions, I'm just going to
21 highlight some of the information that was collected
22 during those activities. On Slide 12 we see a network
23 of monitoring wells. Those monitoring wells were
24 monitored during the performance period of the
25 treatment system and during various investigations.

1 I'd like to point out one specific location:
2 Monitoring Well 16-004 is just downgradient east of
3 the sump, the source area. That location is the
4 primary location that demonstrated groundwater
5 contamination. The majority of the other monitoring
6 wells that were monitored did not display levels of
7 concentration above groundwater standards most of the
8 time.

9 So the next couple slides will focus on
10 Monitoring Well 16-004. As you can see, in 1994,
11 prior to the treatment system going on-line, the
12 concentrations were approximately two orders of
13 magnitude above the groundwater standards. The
14 contaminants of concern included chlorinated solvents
15 and petroleum contamination. Also a couple of SVOCs
16 were detected. The monitoring well was monitored
17 throughout the '90s, and then in 2005 the
18 concentrations declined to levels below the
19 groundwater standards. The absence of contamination
20 was also confirmed in 2006 and 2007.

21 Moving on to the soil sampling that was
22 conducted at Site SS-016, again on Slide 15 here, you
23 will see various sampling locations that correspond to
24 various investigations. I'd like to highlight the
25 confirmation sampling that was conducted in 2007

1 represented by these squares. The 2007 sampling
2 locations were dispersed in the vicinity of the sump,
3 and they were collocated next to historic locations
4 that showed elevated concentrations in the past.
5 Also, the triangle here represents a sub-slab soil gas
6 sample that was collected to evaluate soil vapor
7 intrusion. The results of the soil samples are shown
8 on Slide 16, and they demonstrate the absence of
9 contamination. All detected concentrations were below
10 New York State DEC guidance values.

11 So in summary, the groundwater and soil
12 sampling data that was collected during the
13 performance monitoring and during the confirmation
14 soil sampling confirmed the absence of contamination
15 in the groundwater as well as the absence of soil
16 contamination at levels of concern. Also, it was
17 confirmed that there is no potential for soil vapor
18 intrusion at this time.

19 With that, and given the removal activities
20 that were conducted at the site, the data supports the
21 conclusion that there is no current or potential
22 future threat to the public or the environment, and a
23 No Further Action recommendation is proposed for Site
24 SS-016.

25 The next slide just summarizes the timeline

1 for receiving comments to the proposed plan. As you
2 know, the proposed plan was published August 18th,
3 2008, and today, August 28th, we're holding the public
4 meeting. The end of the comments period is
5 September 16, 2008. Any comments received prior to
6 the end of the comment period will be reviewed, and a
7 responsiveness summary will be included in the Record
8 of Decision.

9 As Dave mentioned earlier, written comments
10 can also be sent to this address shown on Slide 20.

11 MR. FARNSWORTH: At this point I'd like to
12 open up the meeting for comments or questions.

13 Since everything being said here tonight is
14 being taken down, please state your name for the
15 record before you make your statement.

16 If you should later decide to make additional
17 comments on the proposed action, please mail them to
18 this address by September 16th. Also, I'd like to add
19 that the proposed plan is available for review at the
20 Air Force Real Property Agency office here in
21 Plattsburgh.

22 That's it.

23 MR. ATIK: The meeting is adjourned.

24 (The hearing was in recess at 7:23 PM.)

25 *** ** ***

C E R T I F I C A T I O N

I certify that the foregoing is a correct transcript
from the record of proceedings in the above-entitled
matter.

9-5-08

Date

Johanna Masse

Johanna Masse, RMR, CRR

Air Force Real Property Agency

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SS-016 – Nose Dock 8 Proposed Plan



Plattsburgh Air Force Base

U.S. AIR FORCE

August 28, 2008



U.S. AIR FORCE

Comments

- **Verbal or Written at end of Public Meeting, or**
- **Mail your written comments (to be received no later than September 16, 2008) to:**

**MR. DAVID S. FARNSWORTH
BRAC Environmental Coordinator
Air Force Real Property Agency
304 New York Road
Plattsburgh, NY 12903
(518) 563-2871**



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Agenda

- **Proposed Plan Process**
- **SS-016 – Nose Dock 8 Background**
- **Summary of Investigations**
- **Summary of Removal Activities**
- **Groundwater and Soil Sampling Summary**
- **Recommendations**
- **Schedule**



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Proposed Plan Process

- Site Inspections (SI), Remedial Investigations (RI), and Supplementary Investigations are performed.

- Sampling data is reviewed with the US Environmental Protection Agency (USEPA) and NYS Department of Environmental Conservation (NYSDEC). Comparisons are made to Applicable or Relevant and Appropriate Requirements (ARARs) or Guidance Values. Also, if warranted, site specific risk assessments are conducted.

- Based on results from above, the site is then categorized into either:
 - No Further Action (NFA)
 - Interim Removal Action (IRA)
 - Feasibility Study (FS)



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Proposed Plan Process

- A Draft Proposed Plan (PP) is developed with USEPA and NYSDEC consultation.
- The Proposed Plan is issued to the public for input.
- Public comments are addressed.
- A Responsiveness Summary to public comments is prepared and incorporated in the Record of Decision (ROD).
- Record of Decision is executed by the Director of the AFRPA and the USEPA Regional Administrator with NYSDEC concurrence.



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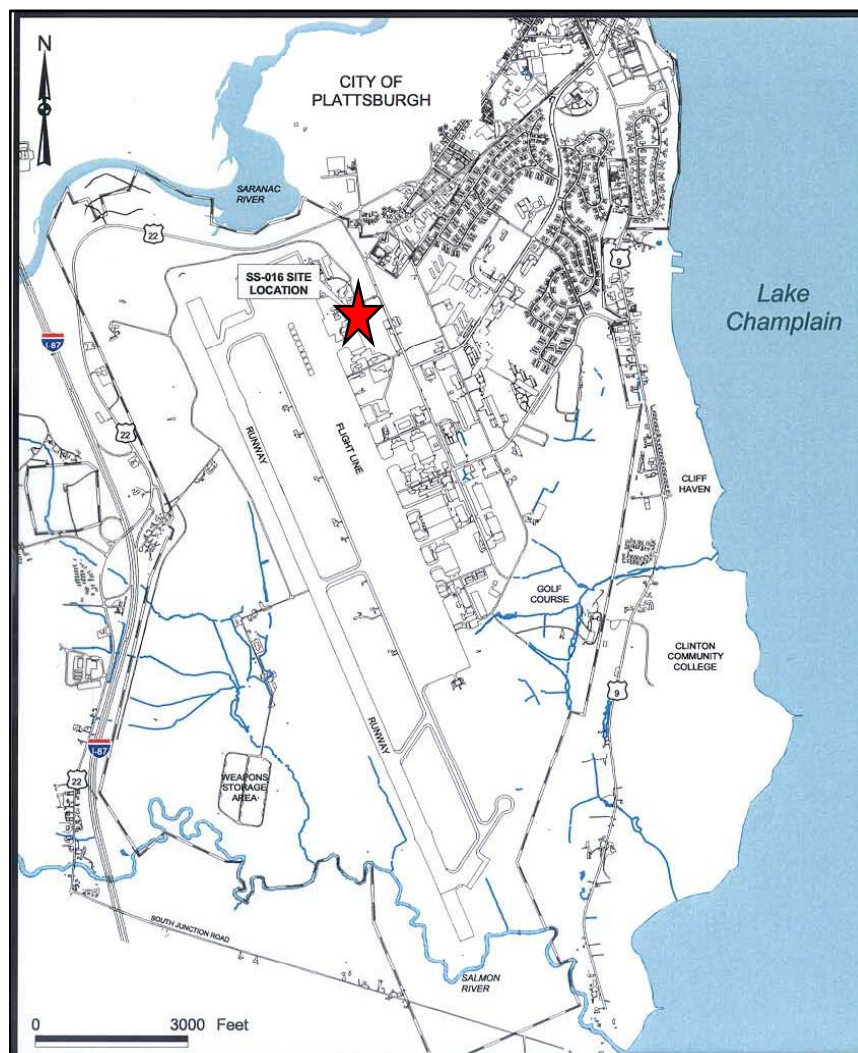
SS-016 – Nose Dock 8 Background

- SS-016 (Nose Dock 8) is located within the industrial area of Plattsburgh AFB on the northeastern end of the flightline ramp. The site is centered around the eastern end of Nose Dock 8 (Building 2890) where aircraft were staged for painting and maintenance. Nose Dock 8 was active from 1956 until base closure in 1995.
- Solvents used at Nose Dock 8 included: 2-butanone, Turco paint remover, lacquer thinner, and polyurethane thinner.
- The major source of contamination at the site was a former underground concrete-lined sump inside Nose Dock 8. It was used to collect and store waste solvents.
- The sump ruptured on March 26, 1987. Approximately 1,400 gallons of waste solvents leaked into the ground. The sump subsequently was abandoned and filled with concrete. Contamination associated with the sump and a below-grade pipe that connected the sump to a grated floor drain was confirmed during the 1999 removal of the sump.



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SS-016 – Nose Dock 8 Site Location

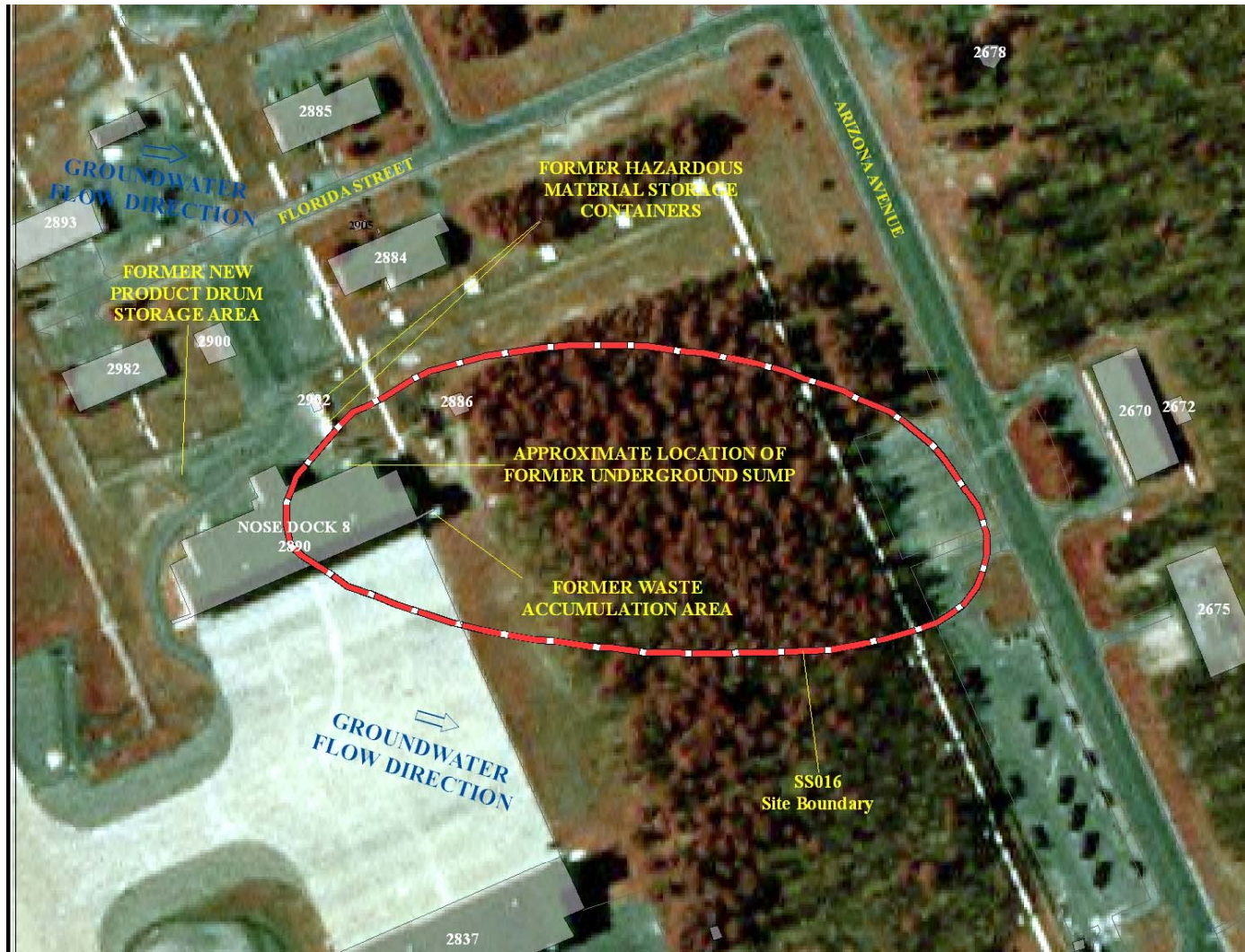


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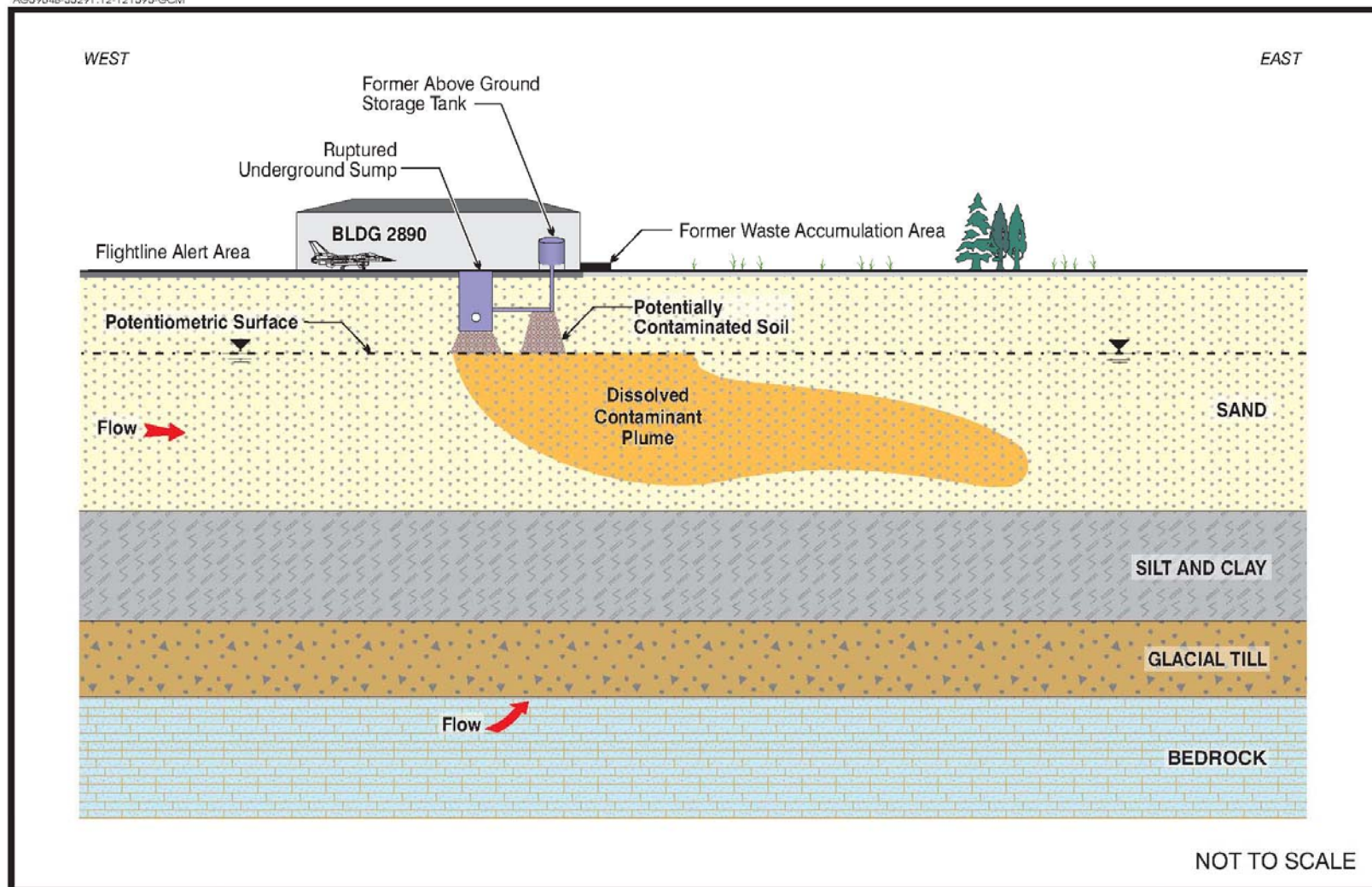
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SS-016 – Nose Dock 8 Site Features



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SS-016 – Nose Dock 8 Conceptual Site Model





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SS-016 – Nose Dock 8 Summary of Investigations

1985

- Phase I Record Search
- Review of records and practices at Building 2890

1987

- Sump Release Investigation & Site Investigation
- Soil and groundwater sampling at the site
- Limited soil gas, groundwater, surface water, and sediment sampling at the site.

1994

- Remedial Investigation
- Extensive sampling of soil, groundwater, surface water, and sediment at site SS-016.

1996

- Treatability Study & Groundwater Sampling
- Evaluation of interim removal and remedial actions. Implementation of groundwater extraction and Soil Vapor Extraction (SVE) systems.

1997

- Supplemental Investigation
- Soil and groundwater sampling

**2000-
02**

- Supplemental Evaluation/Feasibility Study
- Summarize previous data, evaluate risks and remedial alternatives, soil and groundwater sampling, and extensive hydrogeologic testing

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SS-016 – Nose Dock 8 Summary of Removal Activities

1996-2006

- **Operation of Groundwater and Soil Treatment System**
 - Groundwater extraction and treatment (air stripper, carbon)
 - Soil Vapor Extraction (SVE)

1996-2006

- **Groundwater Performance Monitoring**
 - Groundwater sampling to monitor performance of remediation systems. VOCs and SVOCs were analyzed.

1999

- **Sump Removal Action**
 - Sump and approximately 10 cubic yards of contaminated soils were removed.

2007

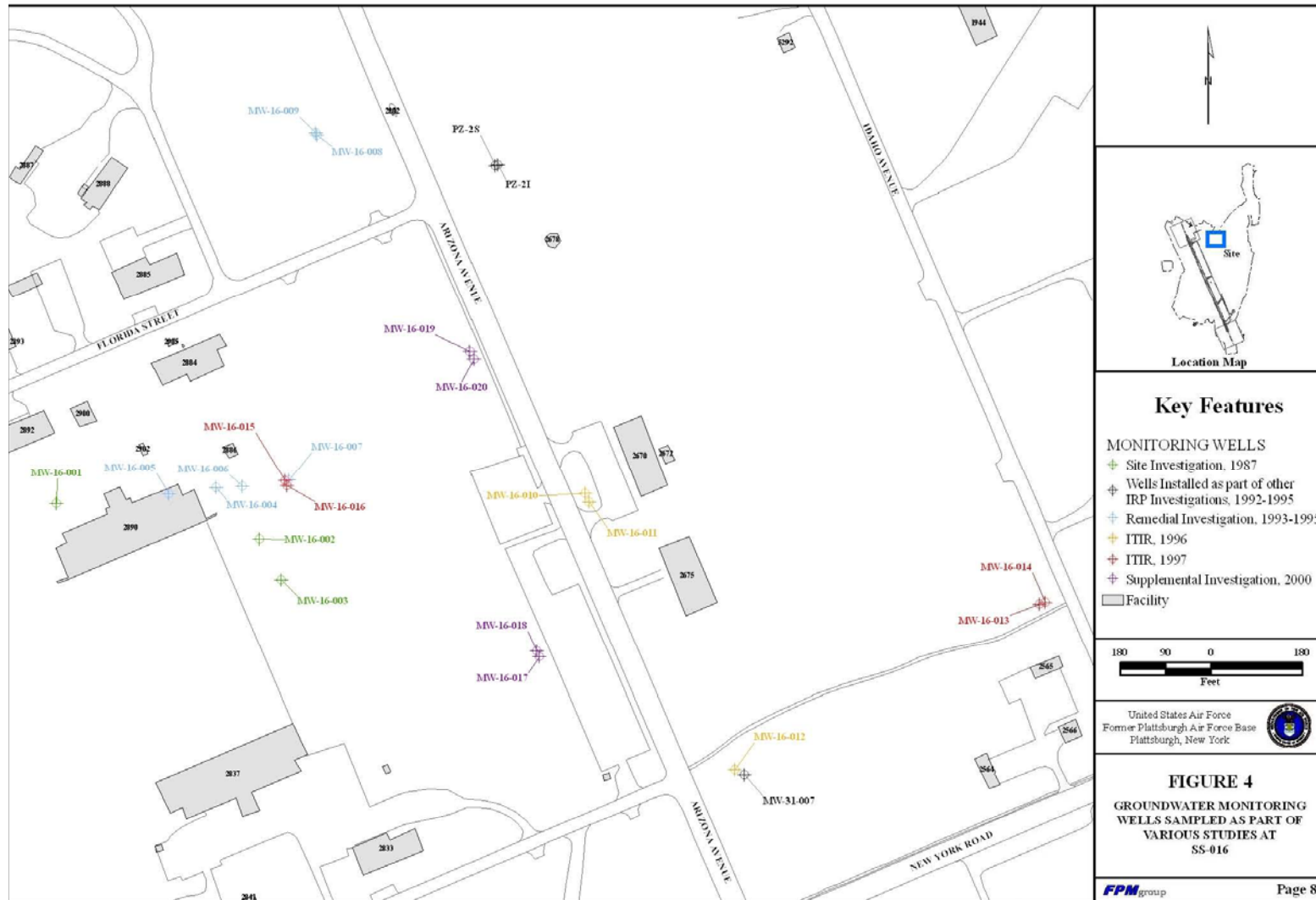
- **Confirmatory Soil Sampling**
 - Evaluate the progress of remediation in the vadose zone under Building 2890.

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SS-016 – Nose Dock 8 Groundwater Monitoring



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SS-016 – Nose Dock 8 Groundwater Sampling

1994 - 2000 Summary of Groundwater Exceedances at MW-16-04

Sample Location	NYSDEC Class GA	MW-16-004					
Date of Collection	Groundwater Standards	1994	1995	1997	1998	1999	2000
VOCs (µg/L)							
1,2-Dichloroethene (cis)	5	33.00	10.00	11.00	6.00	6.00	2.00
Acetone	50	16.00	140.00	36.00	23.00	20.00	41.00
Ethylbenzene	5	36.00	8.00	18.00	23.00	16.00	10.00
Toluene	5	72.00	38.00	38.00	28.00	40.00	21.00
Trichloroethene	5	105.00	55.00	50.00	46.00	52.00	11.00
Xylene (total)	5	235.00	79.00	136.00	133.00	109.00	57.00
SVOCs (µg/L)							
4-Methylphenol	1	95.00	--	14.00	66.00	87.00	61.00
Naphthalene	10	150.00	--	152.00	189.00	147.00	122.00

Notes:

NA - Groundwater Standard not available.

-- The analyte was not analyzed for.

U - The analyte was analyzed for, but not detected.



Shading indicates substance exceeds NYS Groundwater Standards or Guidance Values



SS-016 – Nose Dock 8 Groundwater Sampling

2005 - 2006 Summary of Analytical Groundwater Data

Sample Location	NYSDEC Class GA	MW-16-004					
Date of Collection	Groundwater Standards	Mar-05	Jul-05	Sep-05	Dec-05	Sep-06	Jan-07
VOCs (µg/L)							
1,2-Dichloroethene (cis)	5	1.26	0.16	U	0.39	U	U
Acetone	50	1.30	1.40	2.90	3.06	2.11	2.27
Cyclohexane	NA	0.67	0.33	0.24	0.50	U	U
Ethylbenzene	5	6.02	1.20	2.10	4.35	0.40	0.35
Isopropylbenzene (Cumene)	5	3.45	0.17	0.76	0.48	0.16	0.57
Methylcyclohexane	NA	2.02	1.30	0.60	0.85	0.17	0.35
Methylene Chloride	5	U	U	0.20	U	U	U
Tetrachloroethene	NA	U	U	U	U	0.10	U
Toluene	5	3.30	U	U	U	U	U
Trichloroethene	5	0.30	U	U	0.19	U	U
Xylene (total)	5	36.70	0.58	2.06	4.75	U	U
SVOCs (µg/L)							
1,1'-Biphenyl	5	3.22	U	3.9	2.2	2.42	2.38
2-Methylanphthalene	50	13.1	U	U	U	U	U
bis(2-Ethylhexyl)Phthalate	5	1.25	61.1	U	1.06	1.23	U
Di-n-butylphthalate	50	U	U	U	1.21	1.62	U
Naphthalene	10	58.7	1.56	U	U	U	U
Pentachlorophenol	NA	1.04	U	U	U	U	U

Notes:

NA - Groundwater Standard not available.

U - The analyte was analyzed
for, but not detected.

Shading indicates substance exceeds NYS Groundwater Standards or Guidance Values



SS-016 – Nose Dock 8 Confirmatory Soil Sampling

Confirmatory Soil Boring Analytical Results

Sample Location	NYSDEC TAGM #4046	SB-16-014	SB-16-015	SB-16-016	SB-16-017	SB-16-018	SB-16-019	SB16-020
Date Sample	Guidance Values	1/9/07	1/9/07	1/9/07	1/9/07	1/9/07	1/9/07	1/9/07
VOCs (µg/kg)								
Acetone	200	45.3 J	17.6 F	67 J	15.5 J	17.9 J	49.5 J	13.2 F
Methylcyclohexane	NA	9.7 J	U	13.2 J	U	U	U	U
Methylene chloride	100	5.6 J	U	U	6.9 J	U	U	U
Tetrachloroethene	1,400	12.2 J	U	U	U	U	U	U
Toulene	1,500	4.0 J	U	U	U	U	U	U
SVOCs (µg/kg)								
bis(2-Ethylhexyl) phthalate	50,000	190 J	370 J	430 J	U	800 J	1,200 J	1,100 J
Caprolactam	50,000	U	U	U	48 J	U	U	U
Phenanthrene	50,000	180 J*	U	U	U	U	U	U
Pyrene	50,000	57 J	U	37 J	U	U	U	U

Notes:

* - Higher numerical result reported from the duplicate sample.

F - The analyte was positively identified, but the associated numerical value is below the reporting limit.

J - The analyte was positively identified, but the quantitation is an estimate.

NA - Value not available.

U - The analyte was analyzed for, but not detected.



SS-016 – Nose Dock 8

Groundwater and Soil Sampling Summary

- Groundwater Performance Monitoring was performed in 2006 and 2007, all concentrations were below NYS Groundwater SCGs.
- Soil Treatment confirmatory and soil vapor intrusion (SVI) evaluation samples were collected in 2007.
 - Soil concentrations were below NYSDEC TAGM Guidance Values.
 - Sub-slab soil vapor sample did not indicate potential for SVI.



SS-016 – Nose Dock 8 Recommendations

- As a result of the restoration activities, the soil and groundwater contamination reported during the previous investigations at SS-016 was removed.
- The remaining concentrations of chemicals in the soil and groundwater do not exceed NYS Standards, Criteria, and Guidance values and pose no current or potential future threat to public health or the environment.
- No Further Action (NFA) is proposed at SS-016.



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Schedule

- **Proposed Plan Public Notice Published – 08/18/2008**
 - **Public Meeting – 08/28/2008**
 - **End of Comments Period – 09/16/2008**
- Public Comments
Period
- **Public comments will be reviewed prior to documentation of selected remedy in Record of Decision.**
 - **Record of Decision**



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Comments

- **Verbal or Written at end of Public Meeting, or**
- **Mail your written comments (to be received no later than September 16, 2008) to:**

**MR. DAVID S. FARNSWORTH
BRAC Environmental Coordinator
Air Force Real Property Agency
304 New York Road
Plattsburgh, NY 12903
(518) 563-2871**

APPENDIX B

RESPONSIVENESS SUMMARY



DEPARTMENT OF THE AIR FORCE AIR FORCE REAL PROPERTY AGENCY



September 22, 2008

MEMO FOR RECORD

SUBJECT: Responsive Summary: Public Comment Period for the Proposed Plan for Installation Restoration Program (IRP) Site SS-016, Nose Dock 8 Plattsburgh Air Force Base, Plattsburgh, NY

A. OVERVIEW

Site SS-016 is located within the industrial area of the former Plattsburgh Air Force Base between Florida and Delaware Streets on the northeastern end of the flight-line ramp. Soils and groundwater were contaminated at the site due to the leaking of waste solvents and the 1987 rupture of a sump located in the northeast corner of Nose Dock 8 (Building 2890). The site was used to stage aircraft for painting and other general maintenance operations. The site is currently unoccupied.

The Air Force has undertaken actions in response to the contamination identified at Site SS-016. Investigations and activities included: Phase I Record Search in 1985, Sump Release Investigation and Site Investigation in 1987, Remedial Investigation (RI) conducted from 1994 through 1996, Treatability study in 1996, Groundwater and soil sampling from 1996 to 2007, Sump removal in 1999, and a Supplemental Evaluation/Feasibility Study from 2000 to 2002.

During the RI and sump removal activities, contaminated groundwater and soils were identified to the north and east of the site. For the Treatability Study, treatment systems consisting of a groundwater extraction well and a Soil Vapor Extraction system were installed at Site SS-016 and operated until 2006. To evaluate the performance of the treatment systems, groundwater monitoring and soil sampling were performed. A Supplemental Evaluation and a Feasibility Study were also conducted from 2000 to 2002 to summarize previous data; conduct soil and groundwater sampling; conduct extensive hydrogeologic testing; evaluate risks; and evaluate response alternatives. The Feasibility Study recommended the continued operation of the current treatment systems.

Groundwater and soil sampling events conducted in 2005 through 2007 indicate that contamination is stabilized and below New York State Groundwater Standards, Criteria, and Guidance values (SCGs) and United States Environmental Protection Agency (USEPA) Maximum Contamination Levels (MCLs).

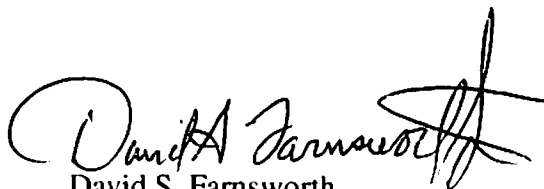
As a result of the removal activities and the continued operation of the treatment systems the contaminated soil and groundwater found during previous investigations were removed. Therefore, the United States Air Force has selected *No Further Action* at Site SS-016.

B. PUBLIC MEETING AND PUBLIC COMMENT PERIOD

A public meeting was held on the recommended alternative for Site SS-016, Nose Dock 8, on 28 August, 2008 at 7:00 p.m. It was held at the at the Clinton County Government Center, First Floor Conference Room, 137 Margaret Street, in the City of Plattsburgh, County of Clinton, New York. A prepared statement was read by Mr. David S. Farnsworth, the Base Realignment and Closure (BRAC) Environmental Coordinator for the Air Force Real Property Agency (AFRPA). Mr. Gaby A. Atik of FPM Group, Ltd. detailed the Record of Decision for the audience. The floor was then opened to the public for questions and comments. There were no questions or comments. Mr. Farnsworth concluded the meeting with a statement that additional comments could be sent to the Air Force. As advertised in the Plattsburgh Press-Republican, the public comment period ran from August 18, 2008 to September 16, 2008. The Public Meeting was recorded by Ms. Johanna Masse.

C. SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND AGENCY RESPONSES

No comments or questions were received by the Air Force.



David S. Farnsworth
BRAC Environmental Coordinator

APPENDIX C

NYSDEC CONCURRENCE LETTER

**New York State Department of Environmental Conservation
Division of Environmental Remediation**

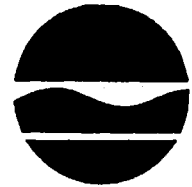
Remedial Bureau A

625 Broadway, 11th Floor

Albany, New York 12233-7015

Phone: (518) 402-9620 • Fax: (518) 402-9020 or 402-9627

Website: www.dec.ny.gov



Alexander B. Grannis
Commissioner

SEP 19 2008

Mr. George Pavlou
Acting Director
Emergency & Remedial Response Division
US Environmental Protection Agency
Floor 19 - # E38
290 Broadway
New York, New York 10007-1866

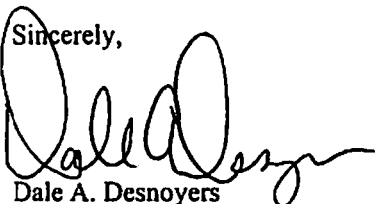
Re: Plattsburgh AFB, 510003
Final Record of Decision
Nose Dock 8, SS-016

Dear Mr. Pavlou:

The New York State Department of Environmental Conservation (Department) and the New York State Department of Health have reviewed the Final Record of Decision (ROD) for the Nose Dock 8, Site SS-016. The Department supported the selected alternative presented in the PRAP, as indicated in email correspondence of 13 August 2008. There are no significant changes between the PRAP and the ROD.

Before signing the ROD please update the DEC guidance references on pages 25 and 35 from TAGM 4046 to the 6 NYCRR Part 375-6.8 Soil Cleanup Objectives.

The Department concurs with the selected remedy, No Further Action, in the Final ROD. Please feel free to contact Mr. Daniel Eaton at 518-402-9620 if you have any questions.

Sincerely,


Dale A. Desnoyers
Director
Division of Environmental Remediation

cc: S. Gagnier, AFRPA
S. TerMaath, AFRPA
D. Garbarini, USEPA
J. Malleck, USEPA
R. Morse, USEPA